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AUTHOR Snyder, C. W., Jr.
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ABSTRACT

Information on evaluation planning for the Community Junior Secondary School (CJSS) system in Botswana is presented in this monograph. The papers were used within the Ministry of Education's Department of Curriculum Development and Evaluation as part of the Junior Secondary Education Improvement Project (JSEIP). The first two chapters describe the participative and argumentative orientation of the evaluation plans. Chapter 3 outlines the mechanism recommended to conduct the evaluation activities, the Evaluation Task Force, and a general plan to begin the process. The proposed tasks and procedures of the Task Force are specified in the fourth chapter. Chapter 5 presents the plans for the continuation of the International Association for the Evaluation of Educational Achievement (IEA) testing. The sixth chapter addresses the plans for formative evaluation of the new materials and their dissemination. The final chapter presents the plans for a National Curriculum Consultative Conference Series to promote further dialogue and exchange between the Ministry of Education and its stakeholders. (LMI)

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EVALUATION PLANS

FOR THE JUNIOR SECONDARY CURRICULUM AND MANAGEMENT ACTIVITIES OF THE BOTSWANA MINISTRY OF EDUCATION

C. W. Snyder, Jr., Ph.D.
Evaluation Coordinator

Junior Secondary Education Improvement Project
Gaborone, Botswana
December, 1987

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Preface

This monograph presents the formal documentation concerned with evaluation planning for the Community Junior Secondary School (CJSS) System in Botswana. These papers were used within the Department of Curriculum Development and Evaluation (CD&E) of the Ministry of Education as part of the Junior Secondary Education Improvement Project (JSEIP). They focus on programme and materials formative evaluation in the new two-year junior secondary education programme.

The first two chapters present the orientation to the evaluation plans. The orientation can be characterised as participative and argumentative. Chapter 3 outlines the mechanism recommended to carry-out the evaluation activities, the Evaluation Task Force, and a general plan to begin the process. Chapter 4 specifies the proposed tasks and procedures for the Evaluation Task Force. The Evaluation Task Force was operationalised and many evaluative activities have begun, although time and resource constraints have hindered the development of a thorough and comprehensive evaluation agenda. Chapter 5 presents the plans for the 'continuation' of the IEA testing programme, tests in word knowledge, reading comprehension, mathematics, and science, which were assembled by the National Commission on Education (1977), under the direction of Torsten Husen. These test results provide a baseline for the assessment of progress during the expansion period of Botswana's basic educational programme. Of course, in the process of change, new curriculum may limit the usefulness of general baseline testing. Chapter 6 addresses the plans for formative evaluation of the new materials and their dissemination. This plan will be updated in early 1988 as the curriculum development effort of the CD&E begins producing materials.

These plans and ideas are protean--meant to interact and lead to new formulations. The Evaluation Task Force of the Deputy Permanent Secretary's Office is the key to future activities. Those involved in the Task Force have other full time jobs and responsibilities. At the moment, 'doing' is seen as more important that 'evaluating.' The rapid expansion of the system in both numbers and complexity, but not in terms of central management, has strained available resources. Evaluation Task Force projects are limited to general policy questions and observational studies. A comprehensive programme evaluation scheme, while recognised as important, is not a priority. During 1987, the *Educational Programme Evaluation Guidelines for Botswana* were devised and discussed. These guidelines may suggest areas for training for the ministerial officials to improve management skills and in the long term, provide the general framework for evaluation activities. The plans and ideas of this monograph will then substantiate these evaluation efforts.

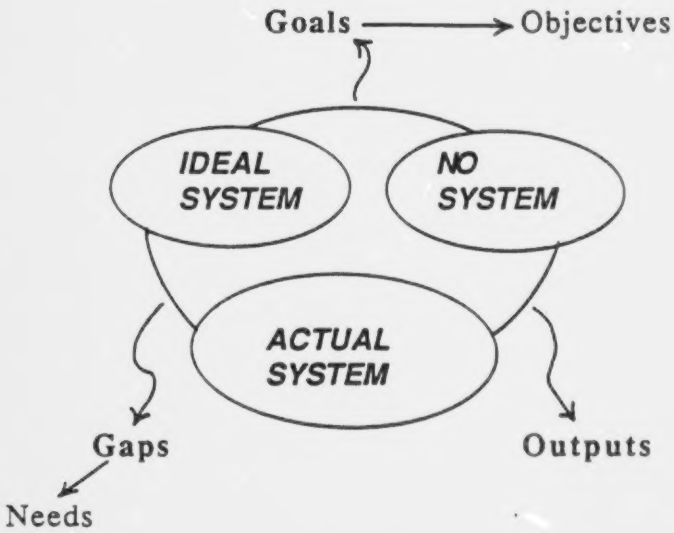
Where possible, evaluative data has been collected, although its availability rests on the goodwill of colleagues rather than the implementation of a comprehensive plan. By the end of 1988, it is hoped to pull together the information culled from these empirical forays to ascertain the status of the system. Some information has already been presented to the ministerial officials through videotaped interviews with school and community authorities. The results have sensitised many to the benefits of evaluative information. Chapter 7 presents the plans for a National Curriculum Consultative Conference Series to further promote dialogue and exchange between the Ministry of Education and its 'stakeholders.' In the realm of 'wicked' problems, mutual understanding and communication are important ingredients to stable and progressive change. Many problems have emerged during the expansion, some unexpected and many unmanageable. The broader 'intelligence' provided by involvement of the community in problem articulation and solution may lead to better approaches in system management both for now and the future.

C. W. Snyder, Jr.
December, 1987

Chapter 1

Beware of "Wicked" Problems: Introductory Notes

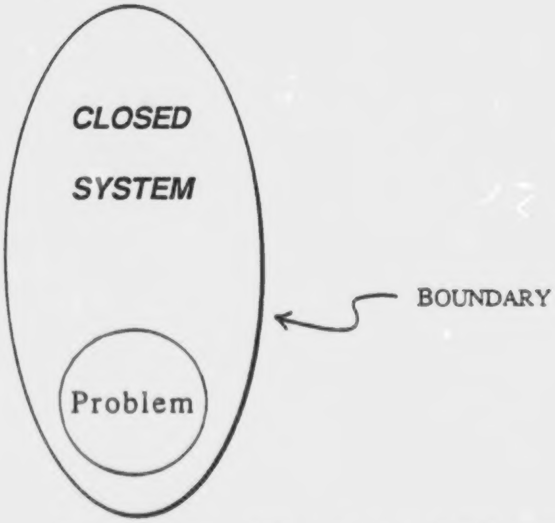
Wicked Problems


Goals
Objectives
IDEAL SYSTEM
NO SYSTEM
ACTUAL SYSTEM
Gaps
Needs
Outputs

GOALS = IDEAL - NONE

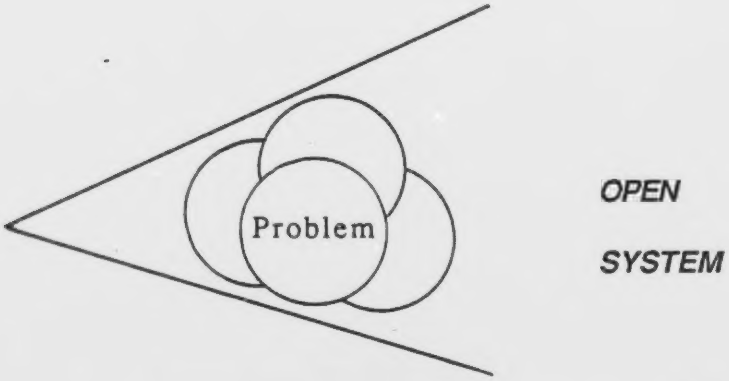
OUTPUTS = ACTUAL - NONE

GAPS = IDEAL - ACTUAL


CLOSED
SYSTEM
BOUNDARY
Problem

Gap Between What "Is" and What "Should Be"

PROBLEM CLARIFICATION === Clear Explanation === NEED


Problem
OPEN
SYSTEM

WICKED PROBLEMS === Many Explanations === NEED

The "need" (which addresses the problem) takes on a different form depending on the explanation chosen.

PROBLEMS

TAME PROBLEMS	WICKED PROBLEMS
•Can be exhaustively formulated	•No definitive formulation -- no "correct view"
•Have closure -- Clear Solution	•Interconnected with other problems -- Solutions have side effects
•Are straightforward with clear root cause	•Are complicated with no identifiable single root cause -- Every problem can be considered as a symptom of another problem
•Exist in a clear, unchanging environment	•Exist in a dynamic, largely uncertain environment -- the system must be flexible
•Solution changes system for the "better"	•Need to trade off "goods" and "bads" even within the same value system -- how things work out depends on uncertain interactions among powerful interests

IMPLICATIONS

- MUST BE BROAD PARTICIPATION IN NEEDS ASSESSMENT
- MUST BE BASED ON A VERY WIDE SPECTRUM OF INFORMATION GATHERED FROM DIVERSE SOURCES
- MUST BE ON-GOING (ADAPTIVE TO CHANGES)

Chapter 2

Searching for the "Because": Rationale for a Plan

Evaluation Can Be Wicked

We can try to set up the educational evaluation of the Junior Secondary (JS) programme in terms of a well-structured problem. In this example, we examine one issue: What is the value of the nine year programme for the employability of JS graduates? The implicit claim of the programme is that the additional two years of education beyond primary for all students will result in graduates who will encounter fewer difficulties in the transition to employment.

Example

Potential Intervention Strategies

Potential Outcomes

Easier---- O_1 O_2 O_3 ----Harder

S_1 = Intensify English Training

S_2 = Increase Technical Studies

S_3 = Integrate Curriculum

S_4 = New Materials

S_5 = In-Service Training

S_6 = Pre-Service Training

S_7 = Guidance Programme

E_{ij} = Efficiency = $P(O_1/S_1)$

Scientific Model

$$H_0 : E_{11} = E_{21} = E_{31} = E_{41} = E_{51} = E_{61} = E_{71} \quad \text{(Null Hypothesis)}$$

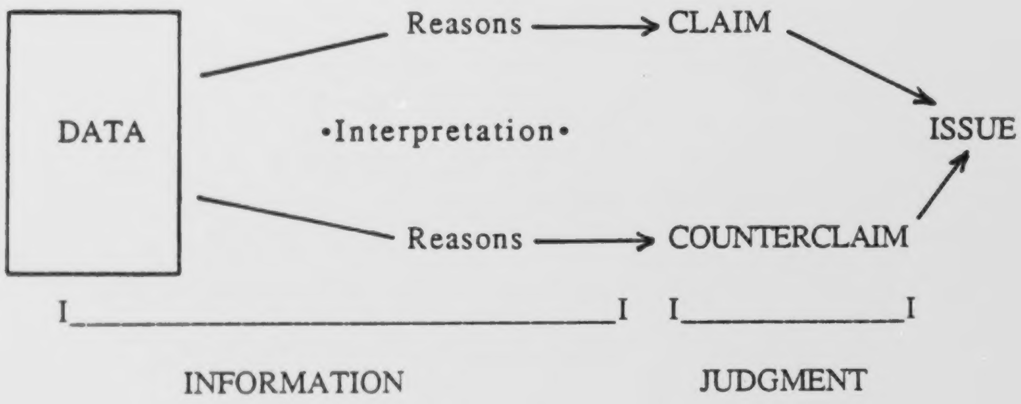
$$H_1 : E_{11} > E_{21} > E_{61} > E_{51} > E_{41} > E_{31} > E_{71} \quad \text{(Alternative)}$$

where the null hypothesis says that all courses of action are equally effective and various forms of the alternative hypothesis say that one choice is better (more efficient) than others.

However, we soon find that it is not easy to obtain consensus concerning the precise issue(s) that the new JS programme is designed to address, the range and interrelationships of interventions that make up the "programme," the efficiencies for particular interventions, and even the importance of particular outcomes. The JS educational context is complex and the many issues are interrelated. That is to say, the problem set confronted by the new JS programme is WICKED (ill-structured with organised complexity)!

Wicked problems, by their very nature, cannot be solved; they can only be MANAGED. This may alter our view of JSEIP (and perhaps reduce some of our frustrations). We are involved in the mangement of a MESS, formally defined as a "system of problems." A "solution" in one part of the problem system is temporary and still leaves a mess! In other words, JSEIP cannot solve the problems associated with the new JS programme; it can only help manage them.

In dealing with a "mess," it becomes important to understand the many different perspectives of the problem set. The purpose of formative evaluation in this context is to provide this critical information for the management of the problem system. This takes the form of an analysis of the various arguments (both offered and constructed) in order to identify the information base which stakeholders to the programme are or should be attending. The figure below illustrates the argumentative structure.



The argument reads GIVEN THAT *x* data are true, THEN the claim *y* can be asserted to also be true, BECAUSE the interpretation of these data is justified by some "accepted" principle, which is sometimes left unstated. For example, looking at part of the argument made by the National Education Commission in 1977 for the new JS programme:

Background Data

- Approximately 34% of Std 7 pupils from both public and private schools gain places in Form I.
- Approximately 20% of Std 7 pupils from the public schools gain places in Form I.
- Government will add only 875 new Form I places by 1980, which would reduce public school student opportunity for Form I to 17% by 1979/80 and to 14% by 1981/82.
- The age of primary entry is falling, bringing a "wave" of increased enrollment to Std 7 by 1979.
- Government cannot afford universal secondary education for some time to come, even though the country is seen as relatively prosperous.
- Secondary schools cost approximately P1000 per place compared to primary schools at P45 per place.
- There is high social demand from parents for places for their children in secondary school.
- Universal lower secondary education (3 years at an "average" boarding-day school) would cost 50% more than the total projected recurrent budget for education in 1981.
- Comparison of projected recurrent costs of alternative strategies for the JS level.

Claim

- "... over the long term, Botswana should move towards nine years of virtually universal education."

Reasons (Justifications of Claim)

•Universal JS education is desirable and necessary at some future stage in Botswana's educational development.

•Seven years of primary does not by itself provide an adequate educational foundation for either specialized training or life in the modern world.

•The demand by parents for places for their children in further education cannot be denied by Government for many more years. The question is not whether to expand but how to do so in a rational fashion that will not involve impossibly high costs.

•Students don't attain physical and emotional maturity until the age of 15 or 16.

•Secondary education should not be expanded through the creation of a "dualistic structure," in which there is a "small but expensive" academic stream for those selected by examination and a large "practical" stream for the system's "rejects."

•Restructuring the system from 7-3-2 pattern to 6-3-3 should provide a financially viable universal nine year programme by 1990.

•Those who have the privilege of receiving secondary, technical, and higher education should consume less of and contribute more to the nation's resources, particularly if they are being supported by the community in full-time study. A greater share of the resources available for second stage education should be directed towards helping the majority.

•Manpower plans are questionnable which assume that economic growth depends chiefly on high-level manpower and specialised technical skills rather than on the knowledge and skills of the majority of farmers, traders, craftsmen, and manual workers.

•The NEC proposal is a development strategy that will utilise the talents and energies of Botswana's youth, provide for a wider view of the country's educational needs, and entails a more equitable balance in the future distribution of resources and rewards.

•When compared to formal education programmes, full-time training courses are seen as second best consolation prizes.

•At worst, the lack of second level academic and vocational channels for students could be a source of social problems.

•The country should also provide other opportunities for secondary school leavers so that educative experiences are available to the whole age group.

•The NEC proposal is consistent with the inevitable long term expansion of the educational system.

- Stopping universal education at the primary level or streaming some students into practical courses at the second level discriminates against those 12 or 13 year-olds who may be late developers and makes the last years of primary education stressful.

- Day school buildings required for the JS will be less elaborate and correspondingly less expensive than previous boarding or day secondary schools.

- Standards will be maintained for entry to JS. Students must pass a competency test or repeat the sixth year of primary school.

This argument does not (and possibly cannot because of the "wickedness" of the situation) take into account all the possible alternatives or outcomes. In the face of uncertainty and complexity, the NEC proposed a "satisfactory" alternative (rather than an "optimal" one), although there is the pretense of optimality embedded in the many "should" statements (which provide the warrants - the *because*, for the interpretation of the data). It is important for the evaluation to explicitly address the *satisficing* quality of the new JS programme, that is, (1) to examine other arguments from other JS stakeholders to provide a more balanced perspective and a more complete understanding of the programme, and (2) to collect data which inform and monitor the argumentative structure that serves as the basis of programmatic claims.

As an example of what happens when we look to other stakeholders, we can examine the AID Project Paper for the Junior Secondary Education Improvement Project (JSEIP). The programme goal for JSEIP is to lead to an enhanced capacity of the education and human resources system to meet projected *workforce requirements*. The focus of the (macro) argument shifts from *education-is-good* to *education-for-employment*. It is conceivable that the JS programme could be a "success" from the perspective of the NEC argument and a "failure" in terms of the AID aspirations. Accordingly, to be responsive in the evaluation process, a wider information net is required to fully expose the programme and its implications and impacts.

Get Their Assumptions[1]

The first step in constructing the framework for the evaluation activities will be the identification and questioning of the stakeholders of the JS programme. These are the people who make decisions about the programme, who are affected by it, who have an interest in it or opinion about it, and who, in general, are those who *ought* to care about it. Below is a sample set.

Minister of Education
Permanent Secretary of Education
Deputy Permanent Secretary of Education
Chief Education Officer - CD&E
Chief Education Officer - Secondary
Chief Technical Education Officer
Chief Education Officer - Non-Formal
Secretary - Bursaries
Director of UTS
Senior Planning Officer
Planning Officers
Curriculum Development Officers
Education Officers - Secondary
Senior Testing and Research Officers
Registrar, Examinations Unit
Regional Education Officers
Headmasters
Teachers
Students
Parents
Staff, University of Botswana
Principal, Molepolole College of Education
Staff, Molepolole College of Education
Staff, Botswana Polytechnic
Staff, National Health Institute
Staff, Auto Trades Training School
Staff, Agricultural College
Staff, Primary Teacher Training Colleges
Director, Brigades

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[1] Remember the Benny Hill dictum = to "assume" is to make an "ass" out of "u" and "me."

People outside the education system (e.g., other ministries, employers, people in the general community) would also be relevant. The list can be supplemented as the process evolves.

Stakeholders, by virtue of their vested interests, make claims (assumptions) about the JS programme. The articulation of these claims in terms of their information bases helps rationalise the evaluative information system. Of course, the task could get too large for the personnel and resources available. Two methods are used to avoid this problem. First, we use a *divergent* interviewing strategy -- that is, we search for arguments until they begin to converge (nothing new being said) across samples that would be expected to offer different claims. Second, we carry out a simple survey to assess which claims are seen as most important and which claims the claimants are most certain are true (whether negative or positive). By these procedures, we identify the pivotal assumptions for the programme and correspondingly, the appropriate foci of the evaluation.

Focusing on the selected set of claims (and their explicit or implicit counterclaims), we breakdown the arguments into the grounds or hard evidence for a particular claim and the *additional* assumptions or premises invoked to interpret the data as support for that claim. The evaluative questions become:

•What claims do you make about the JS programme?

•On what grounds do you base that claim? Specifically, what data do you have?

•How do you get from the data to the claim? That is, why do these data support the claim?

The claims can be categorised to afford a complete view of the programme. In this way, the claimants, who have had some intimate link to the programme or its planning, provide us with "personal" evaluations of the programme from their varied perspectives. Through their eyes and experiences we find out about all aspects of the programme from what *was* to what *will be*. Their individual insights help us better understand how the programme *artifice* interfaces with all parts of its environment.

Previous Context

- What were the specific conditions that led to the programme?
- What was the systemic context at the time?
- What were the opportunity costs of the choice?

Implementation Requirements

- What are the resource and facility claims?
- What are the staff claims?
- What are the cost claims?
- What are the organisational and managerial claims?

Programmatic Activities

- What will the programme claim to be doing?
- How will the programme claim to be doing it?
- What are the strategic assumptions for the programme?
- What are the alternative courses of action?

Impact

- What new conditions are claimed to be a function of the programme?
- What is the new systemic context?
- What are the current alternatives and associated opportunity costs?

Most claims will feature overall positive and negative impact, to the exclusion of other programme aspects. We prompt the stakeholder respondents by the above questions to get at all facets of the programme. This assists in (1) understanding the different programme rationales that stakeholders apply, and in (2) assessing the "depth" of the attitude to the programme. Insight into the programme links yields a more comprehensive programme rationale; recognition of information gaps yields clues to information dissemination needs.

The format of the interview approach is referred to as an *interview guideline*, a list of questions and topics to be covered within a relatively free conversation. Since one part of the evaluation exercise must specifically address the issues surrounding the JSEIP intervention, we can guide the respondent in the following ways.

- What have you heard of JSEIP?
- If you were given responsibility for JSEIP, what questions or issues concerning this project would require your greatest attention? and why? and what would you do about them?
- If you were to design a new project to replace JSEIP, what features would you keep and what would you do differently?

The JSEIP evaluation is thus part of the larger JS programme. By embedding the JSEIP argument into the overall structure, we can better disentangle influences and diagnose problems attributable to this particular course of action. Seen in its supportive function, JSEIP must accommodate to the thrust of its parent programme. It is necessary to understand the larger context in order to appreciate the evolution of JSEIP's accommodations.

Pocket Full of Arguments But No Miracles

Within any progressive initiative there will be many different ideas and opinions about ends and means. Evaluation informs this natural dialectic. It is the hope of evaluation that it will help us muddle and accommodate our way to a programme that does somebody some good and no one any harm.

The scenario for the collection of arguments can be summarized as follows:

Personal Evaluations	"Good" or "Bad"
Why? *Because*	Claims
Why? *Because*	Data (Background and Reasons)
Why? *Because*	Warrants
Why not? *Because*	Rebuttal
Why? *Because*	Backing for Warrants (New Facts)

and so on . . .

The individual claims are based on personal information. Evaluation attempts to improve both the quality and scope of the collective argument through better information to assist the programme in the management of the mess it is intended to address.

We leave you with the "Ode to JSEIP" overleaf.

A programme is an operationalised argument
with which everyone disagrees,
Crafted through political accommodation
it tries desparately to please.

Doomed to disappoint throughout its
stakeholder realm,
It strives to shape some change,
while it doesn't overwhelm.

Evaluation articulates the arguments
and gets everyone to confess,
To prevent the idyllic programme
from becoming part of the mess.

When the dust settles over Gaborone
revealing the programmatic confusions,
We will find a pocket full of arguments
but no miraculous solutions.

Chapter 3

Evaluating the Junior Secondary Programme: Mechanism and General Plan

A Beginning

In early 1977, the National Commission on Education carried out the first comprehensive evaluation of the education system since independence. Based on wide participative consultation with people throughout the country, the recommendations, contained in the report *Education for Kagisano*, were accepted by government and translated into a national policy by the National Assembly in late 1977. The Commission was reconstituted in 1979 to assess progress on the implementation of the plan. Thus, there has been a clear strategic thrust to development efforts in education for the past decade and a precedence for formative feedback and policy adjustment in the face of implementation problems.

One of the key recommendations of the Commission specified the establishment of a "universal" nine year education programme (see Annex A for the form of the argument). A more recent assessment of the education sector was carried out by AID in cooperation with several ministries. The report, *Botswana Education and Human Resource Sector Assessment* (1984), also targeted the junior secondary subsector as a priority investment area. This led to the Junior Secondary Education Improvement Project (JSEIP) funded by AID. As part of the agreement for that project, an advisory and planning committee, the Project Planning Committee, was established to provide counsel on project implementation. The terms of reference for that committee include the responsibility to monitor and assess the progress of the junior secondary programme. Accordingly, there is a built in formative evaluation mechanism focused on the JS level.

Evaluation Task Force

In carrying out the evaluative activities of the Commission, the group relied on smaller working parties, each called a "task force," to carry out the details of data collection and/or research. This paper recommends a similar approach be taken by the Project Planning Committee. The establishment of a Junior Secondary Evaluation Task Force would also address the spirit of the *National Policy on Education* (Government Paper No. 1 of 1977) which argued for "two-way communication on the objectives of the new educational development strategy" and continued "consultation," "analysis," and "planning" on the expansion of intermediate education to nine years for all (in the long run). The Task Force would be an operational working group of the Deputy Permanent Secretary's Office to provide the necessary feedback and analysis of policy decisions implied in the plans for the nine year programme and in the decisions taken by the Planning and Policy Committees for the implementation of the junior secondary programme.

The Task Force would not be a static committee, but a task oriented *working* group. Additional expertise would be coopted for the evaluative tasks as required. This would ensure that the most knowledgeable and responsible people for each area to be studied would be involved in the evaluation work. It would also ensure that the DPS had the best possible information for its own policy development and planning requirements of the Project Planning Committee and the Ministry Policy Advisory Committee.

An Evaluation Framework

The following process steps summarise the general activities of the task force:

1. Understanding the programme and the issues surrounding it.
2. Specifying the programme rationale for assessment.
3. Developing the indicators for programme monitoring.
4. Collecting the data and establishing information network.
5. Identifying and soliciting relevant expertise to enrich data/information base.
6. Analysing the database in terms of evaluative questions.
7. Reporting evaluative findings.

Programme Clarification

Many people know something, or even a great deal, about the new JC programme, but this knowledge is informal and unspecified in most cases. In order to more clearly and comprehensively understand the programme, the many different perspectives and special information sources need to be brought together through a formal analysis of these implicit understandings. The result should be a complete description of the arguments and assumptions which underlie the programme (as well as those which result in counterclaims to the programme).

As examples, two of the historically important arguments for the nine year programme are given in Annexes A and B. These are the positions taken by the National Commission on Education and the National Assembly respectively. The analysis breaks the position statements for the two groups into their argumentative structure. The form of the argument goes, given these *data* (facts), these *claims* are made, ***because*** certain assumptions or reasons allow the interpretation of the data in the way necessary to support the claims. By understanding these arguments we clarify the formal boundaries of the programme -- in these cases, the intentions of the proposals for the programme.

This step forms the general framework for the evaluation. Even if we were to stop here we could specify an inventory of programme components and check whether or not they were in place. Taking the National Assembly argument, for example: are the intermediate schools "more similar to primary schools in class size, physical facilities, level of training of teachers, and in the educational objectives they seek to accomplish;" are the JS schools "day schools" rather than the more expensive boarding schools; have the unaided secondary schools been "fully absorbed into the public intermediate system;" and so on. The absence of a component would need to be justified as inconsequential to the original claim or otherwise, the hoped-for result would be jeopardised (as implied by the logic of the original argument).

Programme Rationale

Evaluation requires a special kind of description, one which makes explicit the links and contingencies of the programme components. Once we know the defining dimensions, the programme can be broken down into its constituent parts, paying attention in this case particularly to the chain of requirements which operationalise the programme. For example, one of the assumptions of the National Assembly argument is that "[t]here will be substantial revisions in the syllabus and curriculum under the direction of a new

Curriculum Development and Testing Unit at the Ministry of Education." This is perceived to be a critical link in the quest to improve the quality of education in Botswana. The implied assertion is: "good" curriculum leads to "good" education (the National Assembly argument was of course more complicated than this, but this will serve for illustration). Since the quality of education is under question, then the curriculum must require revision. We can put this into the larger context of a programme rationale (see Exhibit 2).

Of course, Exhibit 2 is also incomplete (omitting such things as preservice and inservice training of teachers, for example), but it is illustrative of the kind of description required in order to provide diagnostic feedback for corrective action in programme implementation. A complete set of diagnostic routines for all the things going on in a programme as complex as the new JC would be unrealistic. An early requirement will be to determine "priority" chains that ensure the integrity of the programme and increase the likelihood of some achievement (see Annex C for a listing of the articulated aims for the nine year programme from which the prioritisation may derive).

Indicators

The specification of the programme in terms of programme rationale identifies those variables and more importantly, the relationships which may be important to the evaluation. Indicators can then be developed which reflect the continuing status of the programme. They "indicate" problem areas and highlight achievements. Categories and some examples of potentially useful indicators are provided in the JSEIP project agreement:

1. In-School Criteria -- student achievement measures; retention measures of skills/knowledge; time spent on learning tasks; and student flow and attrition rates.
2. Post Junior Secondary Criteria -- manpower, employment, and wage data; lists of training opportunities; effectiveness indices of training; and flow, attrition, and performance information from higher educational levels.
3. Teacher Effectiveness Criteria -- classroom observations; assessments from preservice and inservice training programmes; and student records from the past.
4. Curriculum and Instructional Effectiveness Criteria -- cost, use, appropriateness, content completeness, and clarity data.
5. Improved Institutional Capacity (CD&E) Criteria -- formal structural considerations; staff qualifications; localisation; size and functional effectiveness; available resources to support organisation's mission; communication pattterns; and management procedures.
6. Improved Management Capacity (MOE) Criteria -- outputs; operational procedures; communication patterns; and data processing capacity.

The development of indicators is a complex technical task. Additionally, it must be done quickly and efficiently to provide the necessary time-series baseline from which to assess changes and impact. Unfortunately, there are many problems in the current database procedures, so a great deal of indicator development and infrastructural implementation will be required before the system yields its information.

Evaluative Information

In order for evaluation to provide feedback to a programme or to alter the conceptualisation of the programme, there must be an effective communication network. Unlike research, evaluation is more like a dialogue in which "meanings" must be shared in order to interpret the "hard" data (as in the argumentative structure outlined above). As the word e*VALU*ation indicates, values are an important part of the evaluative process.

Although the evaluation may begin in traditional form (see Annex D for an example of the structured interview guidelines for school personnel), there is an explicit obligation in participative strategies to *share* information (see Annex E for an example of an earlier needs assessment study that will be shared in the early phases of school interviews). This "collegial" approach yields *deeper* information. Sharing the surface knowledge of systemic activities and problems, we can probe the more subtle questions of information architecture, value investments and influences, and management, school, classroom, and community dynamics. We sometimes forget that education is *going on*. When problems are noted, we tend to focus on changing the tangibles, personnel and materials, instead of paying attention to what is actually going on -- that is, the organisational and personal dynamics that influence what happens when the teacher closes the classroom door. Only if we can establish an effective dialogue with the key people in the system can we hope to have an accurate view of the educational problems.

In addition to the collection of appropriate process data as above, we need to establish a formalised information system for the collection of the time-series indicator data so that we can monitor overall programme effectiveness. Working with the MOE Planning Department, the evaluative database can be interfaced with the planning database to ensure cross-fertilisation of information. Working with the CD&E (in conjunction with the Curriculum Coordinating Steering Committee), the curriculum level data can be interfaced with the larger programme database to ensure efficient coverage of this key programmatic area. Working with the UTS, ways of distributing information throughout the service can be identified which augment their current communication efforts. And so on. In other words, the Task Force will try to exploit and enhance the present information system so that useful data sources are tapped routinely as part of the institutionalised system.

Other Expertise

Education presents an ill-structured, complexly ordered problem set which must be understood in order to be *managed*. The evaluation task is a daunting one; there is almost no way to specify all the information requirements of an educational system from an externally imposed evaluation framework. The framework must be *participative*, pooling all the perspectives and talents of relevant expertise (including, of course, parents, students, and teachers) to better understand what's going on and how we might do it better. For this reason, the Evaluation Task Force will coopt resource persons to enhance the potential capability of the evaluative effort.

Analyses

To be useful, data analyses must follow from specific questions. It is in fact the link between question and data which translates data into information. Evaluation is dependent on good information and therefore, good questions. What to ask of data is a high priority requirement for an evaluation plan and obviously will influence many of the decisions made in the other steps listed here (various aspects of each of the steps are enacted simultaneously rather than sequentially).

Evaluation has several purposes: to inform specific decisions, to recommend courses of action or changes in present activities, to clarify programme intents and reduce informational uncertainties, to elucidate and possibly alter attitudes to the programme, to encourage commitment (or disengagement), and to provide insight into the programmatic activities and possible consequences. The Task Force will derive relevant questions to attend to these evaluative objectives. Analyses will be focused to meet these multiple agenda.

As implied in above steps, both qualitative and quantitative analyses will be undertaken. The analyses will fill-in the "collective" argumentative structure of the evaluation. Quantitative information will provide the skeletal foundation to which the qualitative information will give substance.

Reporting

In an educational system, there are many stakeholders -- those concerned with or affected by the schooling process. The Task Force must try to report in some form useful information to *all* contituencies.

The reports to the Project Planning Committee will be formal records of activities and findings of the Task Force. Some topics might be:

1. Review of the Curriculum Development System
2. Review of the JC Examination System
3. What is the New JC Programme -- Checklist of Implementation
4. Comparison of the New and Old JC Programme
5. Development of Baseline Measures and Analytic Methods
6. Contents and Determinants of Programme Elements
7. Critical Assumptions and their Assessment
8. Diagnostic Programme Rationale and Indicator Development
9. Reports on School Visitations and Classroom Observations

Each evaluation report takes the form of an argument and we must remember that "the aim of argument, or of discussion, should not be victory, but progress" (Joseph Joubert).

Exhibit 1.

Junior Secondary
Evaluation Task Force

Purpose: Junior Secondary Policy Appraisal

Activities:

To carry-out evaluation activities for the nine year programme; to organise and implement an evaluation feedback system for schools and administration entities; to design a baseline data system and collect data within that framework; to analyse and interpret data for JS policy appraisal; to report findings and recommendations to the Deputy Permanent Secretary.

Reports to: Deputy Permanent Secretary

Membership:

Convenor: Principal Research/Testing Officer, RTC (Seodi Khama)
Rapporteur: Evaluation Advisor, CD&E (Wes Snyder)
Principal Education Officer for CJSS (George Makunga)
Senior Education Officer, NIR (Ulla Kann)
Planning Officer for CJSS (Don Taylor)
Senior Education Officer, Secondary (Florence Stoneham)
Education Lecturer, MCE (Changu Mannathoko)
Senior Research/Testing Officer, RTC (William Davids)
Senior Curriculum Development Officer (Felicity Leburu)
Faculty of Education, University of Botswana (Pat Rowell)
Secondary Headmasters Association (to be named)

Summary:

This is an operational *working* group of the DPS Office to provide feedback and analysis of policy decisions taken by the Ministry of Education for the junior secondary programme. The task force will coopt additional expertise as required, for example, from the University of Botswana, MCE, Polytechnic, UTS, JSEIP or PEIP projects, MOE, or external authorities (such as BERA, private sector expertise, or overseas consultants).

Exhibit 2.

Simplified Example of a Programme Rationale for the New JC Programme

INPUTS	*ACTIVITIES*	*OUTPUTS*	*ACHIEVEMENTS*
•Specifications of Required Skills for Employment and Continuing Education	•Needs and Requirements can be Translated into Curriculum	•Revised Curriculum for All Subjects	•Improved Quality of the Junior Secondary Education
•Identification of Gaps in Current Curriculum	•Personnel have Sufficient Skills for Curriculum Development	•Full Curriculum Placed in all Schools	
•Personnel Trained in Curriculum Development	•Organisation's Operational Procedures are Enacted to Allow Time-on-Task		
•MOE Unit Established and Organised Conducive to Effective Work	•Referral Resources Utilised		
•Appropriate Materials Available			
•Publication and Distribution System Established			

Annex A

ANNEX A

National Commission on Education

Argument for the Nine Year Programme

Context

•Approximately 34% of Std 7 pupils from both public and private schools gain places in Form I; approximately 20% of Std 7 pupils from the public schools gain places in Form I.

•Government will add only 875 new Form I places by 1980, which would reduce public school student opportunity for Form I to 17% by 1979/80 and to 14% by 1981/82.

•The age of primary entry is falling, bringing a "wave" of increased enrollment to Std 7 by 1979.

•There is high social demand from parents for places for their children in secondary school.

•Government cannot afford universal secondary education for some time to come, even though the country is seen as relatively prosperous. Secondary schools cost approximately P1000 per place compared to primary schools at P45 per place. Universal lower secondary education (3 years at an "average" boarding-day school) would cost 50% more than the total projected recurrent budget for education in 1981.

•Comparison of projected recurrent costs of alternative strategies for the JS level: present structure/20% of age cohorts limited access = P30 million; present structure/increased to 50% access = P42 million; and modified 7-2 structure/universal JS = P40 million.

•In the Primary Level some children are being promoted from class to class without mastering the basic foundation on which further learning can be built. Many children are virtually illiterate at Standard 7 when they have nearly completed the primary course. The number who cannot read the most simple sentences is as high as 30% to 40%.

•An IDM study found that 10% of the A Grade candidates and 10% of the B Grade candidates who should have been eligible for admission to secondary school according to their marks on the 1975 PSLE did not receive offers of admission and of all the students who appeared on the original selections list 17% (about 380) did not in fact enter Form I.

•Studies have indicated that the secondary school selection procedure discriminates against pupils from rural schools in gaining admission to Form I. However, for A Grade students, urban residents are disadvantaged: 16% of A students from towns did not appear on any offer list, compared to 10% of the A candidates from villages and only 4% of those from district headquarters, who missed receiving offers. The problem for town A students seems to be the numbers of them and the quotas of local schools. Once local schools fill their quota of day students, the remaining A candidates in the area must wait for boarding places elsewhere to be offered to them, even though A students from other areas who cannot attend school as day pupils get first priority in the allocation of boarding places.

•The Somerset Report on the PSLE indicated that Kalanga-speaking schools performed about as well as other schools on the PSLE exams, except in the Setswana exam, where Kalanga schools performed considerably worse (11 point difference between averages for Mostly-Non-Kalanga vs. Pure Kalanga). Also, 35 pupils who sat the Setswana exam but attended English-medium schools performed at least one standard deviation better than the national average on all exams, but only performed at the average level in Setswana.

•Standards, as measured by performance on the JC Exams, for unaided schools are much below standards in Government Schools. Some private schools (not counting Maru-a-Pula) compare favourably with some Government Schools.

•The academic performance of secondary students is far from satisfactory. In the Husen Survey of achievement, Form III students with an average age of 17 had an average score of 31% on an international test of reading comprehension designed for 14 year olds. Form V students, a more select group, averaged only 50% on the same test. Form III students are also below the pass-rate of British 13-14 year old students in mathematics (60% for British versus 50% for Botswana Government schools and 37% for private schools. In science, Form III private schools performed closer to 10 year olds in India and Chile, while Government schools performed on average better than India 14 year olds and below Chile 14 year olds and British 10 year olds.

•The results on the Junior Certificate examination have been improving in recent years, but the Cambridge School Certificate pass rate has, in contrast, shown a long-term downward trend, which was reversed only in 1975. However, JC marks were standardised on the population taking the test, so that in one subject, for example, a raw score of 0% was credited with a standardised score of 23, possibly enabling a student to obtain a good overall JC. Also, marks were set at predetermined percentage pass levels across the BLS countries, leading to adjustment of scores to obtain desired grade splits. The UBLS Exams Council promised to discontinue this practice in the future, but the JC was not regarded in any case as a credible instrument of measuring the abilities of candidates.

•The Commission heard many complaints that students were listless and poorly motivated towards work, that they had little commitment to the nation or to the local community, and that they showed little initiative or ability to solve practical problems.

•The Commission heard many criticisms of ineffectiveness and delays on the part of the Ministry of Education. This was confirmed by direct observations.

•In 1966, 173 bursaries were awarded to 11% of the secondary school enrollment, totalling P10,380; by 1975, 2420 bursaries were awarded (28%), totalling P131,390. Of all the students enrolled in Form I in 1976, 31% were receiving bursaries.

•Given the median family income in the North West District is no higher than in other districts, this district received far fewer bursary awards (11% of enrolled compared to overall average of 31%).

•Report of the Secondary Curriculum Task Force indicated that the existing JS curriculumwas too academic, not practical enough and not sufficiently related to the needs of Botswana. The Task Force noted problems in the current subject areas, made specific recommendations for each subject area, recommended a new JS curriculum, but did not favour the introduction of a two-year JS course.

•According to the Husen Survey, at the secondary level, Government schools had approximately 22% untrained teachers, whereas private schools had approximately 54%. In a path analysis on Standard 7 achievement information, the teacher effect on student achievement was found to be substantially larger than that found in industrialised countries, but just more than half the magnitude of the regional effect.

•The Husen Survey found that over half the secondary teachers (59% Government and 67% private) reported rarely or never discussed work with authorities; 37% Government and 49% private reported rarely or never discussed work with subject advisor.

•At secondary level, an average of 22% of trained Batswana left service each year from 1972 - 1975 and untrained teachers left service had an even higher wastage rate.

Claims

•"... over the long term, Botswana should move towards nine years of virtually universal education." This is an important part of the "new strategy for educational development in Botswana," which will address the following national needs:

1. The need to modify the content and improve the quality of education at all levels to ensure that it provides both the fundamental competencies that will enable young

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Batswana to contribute to development; and the attitudes and understanding that will foster democracy, development, self-reliance, unity, and *kagisano*.

2. The need to consider the education of all the people, as implied by the principle of democracy. Sharp differences in geographical or financial accessibility of education to different sections of the population should be removed in so far as possible.

3. The need to conserve financial resources and to promote economic growth while cultivating the nation's human resources. The principle of development requires an education system that is economic and productive.

4. The need to encourage effort on the part of individual learners in their studies and on the part of communities in the provision of education. The principle of self-reliance demands this.

5. The need for the education system to be a continuum; and for the differences and distinctions between the different levels of education, between in-school and out-of-school learning, between government schools and independent schools, to be reduced or eliminated as quickly as possible. This is the implication of the principle of unity.

•The NCE proposal is a development strategy that will utilise the talents and energies of Botswana's youth, provide for a wider view of the country's educational needs, and entails a more equitable balance in the future distribution of resources and rewards.

Bases for Claims

•Universal JS education is desirable and necessary at some future stage in Botswana's educational development.

•Seven years of primary does not by itself provide an adequate educational foundation for either specialized training or life in the modern world.

•The demand by parents for places for their children in further education cannot be denied by Government for many more years. The question is not whether to expand but how to do so in a rational fashion that will not involve impossibly high costs.

•Students don't attain physical and emotional maturity until the age of 15 or 16.

•Secondary education should not be expanded through the creation of a "dualistic structure," in which there is a "small but expensive" academic stream for those selected by examination and a large "practical" stream for the system's "rejects."

•Restructuring the system from 7-3-2 pattern to 6-3-3 should provide a financially viable universal nine year programme by 1990.

•Those who have the privilege of receiving secondary, technical, and higher education should consume less of and contribute more to the nation's resources, particularly if they are being supported by the community in full-time study. A greater share of the resources available for second stage education should be directed towards helping the majority.

•Manpower plans are questionnable which assume that economic growth depends chiefly on high-level manpower and specialised technical skills rather than on the knowledge and skills of the majority of farmers, traders, craftsmen, and manual workers.

•When compared to formal education programmes, full-time training courses are seen as second best consolation prizes.

•At worst, the lack of second level academic and vocational channels for students could be a source of social problems.

•Universal lower secondary education will not simply "move the school leaver problem" to an older age group. The nature of the problem will be different because the school leavers will now be 16 or 17 years old and physically, intellectually, and socially more mature than the 13 or 14 year olds presently emerging from primary schools.

•The country should also provide other opportunities for secondary school leavers so that educative experiences are available to the whole age group.

•The NCE proposal is consistent with the inevitable long term expansion of the educational system.

•Stopping universal education at the primary level or streaming some students into practical courses at the second level discriminates against those 12 or 13 year-olds who may be late developers and makes the last years of primary education stressful.

Programme Assumptions

•The primary school course should be shortened, by 1990, to six years as part of the restructuring of the school system.

•The new JC programme will end at Form II instead of Form III, consisting of a two-year programme until 1990 and becoming a three-year programme after that.

•The junior secondary school will be a modest day secondary school, linked closely with the primary schools from which their children are drawn. Day school buildings required for the JS will be less elaborate and correspondingly less expensive than previous boarding or day secondary schools.

•Present secondary schools will serve as senior secondary schools for a three-year course leading to Senior Certificate level.

•Change in the nature of the Junior Certificate Examination and the level at which students sit this examination to fit the new programme.

•The JC Examination should contain more items testing explanatory and reasoning powers.

•The actual grade in each subject on the JC Exam should conform with international standards in terms of the level of performance they denote in order that Batswana can use their certificate where necessary to gain admission to courses abroad.

•Development of a new syllabus and curriculum for the junior secondary course, incorporating wider objectives and a practical orientation, will be undertaken by the proposed Curriculum Development and Testing Unit.

•Emphasis must be placed throughout the curriculum on the local Botswana context -- in art, music, literature, language, history, geography, science, practical studies, and especially in civics or development studies.

•Although all curricular areas are important, fundamental competencies in mathematics and in language communication (including Setswana) are of special importance. Setswana must be mastered by all.

•The curriculum areas which all students should study throughout their courses are Tswana Culture, English, mathematics, science, social studies, and practical subjects. At the junior secondary level the curriculum would consist of the same six basic elements for all, except that schools might vary their practical subject offerings according to the particular location and facilities of the school.

•All students should take at least one practical subject throughout their course. In addition all subject teaching should be given a practical orientation, and 2 or 3 hours per week of practical work for the school or community should be included in the curriculum.

•French should no longer be offered as a normal school subject.

•The curriculum should include teaching about democratic institutions and the way they work, and education should incorporate practical experience in democratic institutions through visits to *kgotla*, council, or Parliament.

•There must be continuity between the junior and senior levels. This means attending to the problems relating to sequencing of material, the occurrences of overlaps, duplications, and gaps, the failure in some cases of the JC course to cover material which the Cambridge course asumes as a starting point in its syllabus, and the differences in orientation between the two courses in regard to the type of intellectual skill being developed.

•Schools should develop and make very much more use of their libraries, both as part of the regular curriculum and for recreational purposes. Libraries can play a major role in improving reading competence and fostering self-study skills.

•A library advisor should be included on the Inspectorate, and headmasters should appoint teachers and students as library assistants.

•The Research and Testing Centre will undertake the development and setting of the JC exam as a national testing centre under the auspices of the proposed Curriculum Development and Testing Unit.

•A separate National Examinations Council would provide direction on examination policy and independent oversight of the administration of the examinations and the maintenance of standards of marking. This Council should include representatives from the Ministry of Education, the University, and possibly the secondary schools, the teacher's union, and other institutions.

•Necessary changes must be made in the primary syllabus and curriculum and PSLE, providing a six year primary cycle that will link closely with the new junior secondary course.

•Separate elite streams of students within the public education system are precluded.

•Standards will be maintained for entry to JS. Students must pass a competency test or repeat the sixth year of primary school.

•Schools and training courses in different parts of the country mut be properly linked to a national system so that learners can qualify themselves appropriately to move from one institution or level to the next without undue hindrance. Unaided schools and continuation classes should also be linked with the public system so that young people who follow a self-help path will not be blocked from re-entering the public school if they demonstrate academic ability. Furthermore, local curricular modifications designed to suit local circumstances are desirable but should not be allowed to impair mobility.

•Teachers and other educational personnel must be prepared to serve wherever they are needed in Botswana.

•The national flag, wall charts, and maps of Botswana should be displayed in every school, and national events should be commemorated. Modest funds should be put aside for students to travel beyond their locality to other parts of Botswana. National competitions and festivals in sports, music, and arts should be organised.

•Schools themselves are small communities and they must accordingly serve as examples of Botswana's national values. It will be meaningless to speak of democracy, development, self-reliance, and unity if the schools themselves show quite opposite tendencies.

•Communities must have a direct voice through school committees, through parent-teacher associations, and through the formal structure of government in the way their schools are run. Teachers and other educational professionals must be consulted about changes in their conditions of service. They must be given the opportunity to comment on impending changes, and to participate in the work of syllabus change and curriculum reform.

•The necessary legal provisions for setting up autonomous Boards of governors at each secondary school should be instituted. Boards of governors should be established for all secondary schools and should be legally empowered to receive and spend funds, an arrangement which would give the boards flexibility in buying, selling, or renting, raising money, or owning and repairing vehicles for example. The Boards would have the responsibility for the planning and management of the school facilities and for relating the school to the community.

•Public information programmes should be implemented to inform parents, employers, and others about the nature of the structural change and the reasons for carrying it out.

•Students should have every facility for information about opportunities for further study, training careers, and their expressed wishes in these regards should as far as possible be respected.

•Careers advice and counseling services for students should be improved. Each school should have a male and female member of staff designated as careers staff, and allowance should be made for this work in the form of periods free from teaching.

•Courses and conferences should be arranged each year for careers staff by the Ministry of Education in conjunction with other agencies.

•Active encouragement should be given to all employing agencies, whether Government departments, parastatal bodies, or private firms, to visit schools with career information.

•The education system must conserve resources. It must use finance and skilled personnel as sparingly as possible, for these could alternatively be employed elsewhere in the economy, perhaps in more productive uses. Ways to reduce the cost of educating people in secondary, technical, and higher institutions must be found.

•More emphasis should be placed on educating people whilst at work. The Brigades, on-the-job training in BEDU enterprises, in firms, and in government, and evening classes for workers already provide interesting prototypes for a system that could be developed further.

•These must be courses and institutions that provide people with skills valuable in occupations.

•Schools should look beyond their own fences to the community and consider how they may contribute to community improvement, for example through literacy classes and construction work.

•Any plans to enforce limits on the age of entry to primary school should be postponed as long as conditions in rural areas make it difficult for young children to attend school. The maximum permitted age of entry into primary school should be raised to 9 years. All secondary schools should admit pupils to Form I up to 19 years of age (in fact, it has been argued that there should not be maximum entry age limits or other requirements that discriminate against part-time students who many have taken longer to complete their prerequisite course).

•Financial barriers to school attendance should be removed as far as possible. Primary school fees should be abolished in 1980. Secondary school fees for full-time schooling should remain, so long as access to secondary school has to be rationed, but a generous system of bursaries extending to the full costs of attending school should be available.

•The administrative procedures for bursary assessments need to be overhauled and a consistent and realistic value put on parental incomes.

•Bursary awards should reflect the family's financial situation in the light of the current costs of secondary schooling to the student. The maximum award should cover the entire cost of schooling to the student.

•A reassessment of eligibility for bursaries should be possible after Forms I, II, and IV, in the event that family circumstances change after the original assessment has been made.

•There must be careful organisation and high quality provision of out-of-school education. There must be a network of learning opportunities -- alternative pathways -- including part time or correspondence study for formal certificates, vocational skills training, extension programmes to improve skills, productivity, and the quality of life, general information programmes to familiarise citizens with government policies and services, and purely recreational learning.

•A coherent system of technical and vocational education should be created in Botswana.

•For the purpose of admission to secondary school, a quota system should be introduced such that between 5% and 10% of the children with the greatest ability, as demonstrated on the PSLE, from every Stanadard 7 school should be admitted into Form I. The great majority of Form I places should however continue to be filled as at present on strict order of merit.

•The Ministry of Education should review and revise the secondary schools selection and admission procedures so as to ensure that all eligible applicants receive offers of places and are enabled to take them up.

•For the junior secondary level, self-help construction of school buildings should become a major source of classroom space for the schools.

•Communities that start schools, training activities, and courses with self-help should receive moral and material encouragement from Government.

•Lower staffing ratios, of the order of 1.4 teachers per class rather than 1.6 (or one teacher to 21.6 students) in present junior secondary schools, should prevail. Class size should be of the order of 40, where population density permits.

•The normal JS school size will be well below 600 students. For those schools that are already over 600 enrollment, there should be at least 2 deputy heads, and an academic structure of subject heads and subject teachers. A parallel structure of staff with pastoral and student welfare responsibilities is also necessary.

•Headmasters should be encouraged and assisted in modifying school timetables to permit more small group work, especially in laboratory and practical classes.

•JS teachers should be prepared in a new two-year course at the post-Form V level.

•Junior Certificate completers who indicate a preference for teaching should be encouraged to enter the teacher training colleges, even if their JC pass would qualify them for admission to Form IV or other training courses.

•It should be possible to provide JS education at a recurrent cost of approximately P180 per pupil year at 1976 prices, less than half the average annual cost of junior secondary education (Forms I-III) as presently offered.

•Tuition fees at Forms I to III of public secondary schools should be restored to the 1965 level, adjusted for inflation (this would be about P40 or about 10% of the cost of education in junior secondary

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classes, at P387 per year per day place). The money so raised should finance bursaries at unaided as well as aided schools.

•Employers and training organisations will have to review their training programmes to take account of the new nine year (rather than ten year) JC structure and make any necessary adjustments in their training courses.

•Provision should be made and publicised, for headmasters to have power to withdraw pupils from the schools for poor academic performance, but only with the sanction of their own board of governors. Parents should have the right of appeal to the Ministry of Education in each case.

•There should be provision of information and education programmes to encourage sexual responsibility and reduce the occurrence of unwanted pregnancies among young people still in school.

•School premises should be made available for use by clubs, Brigades, evening classes, and even by the unaided secondary schools for academic or recreational activities during evenings and vacations.

•Members of the District Development Committee should regularly visit the schools and take an active interest in their welfare.

•Teachers should participate in community committees to plan development or recreational activities for the area.

•Members of the community should sit on boards or trusts to oversee the affairs of the school.

•Communities should contribute finance, materials, labour, and skills to development projects at their schools, while students and staff can reciprocate with aid to the community projects.

•Schools should be graded by size, and different salary scales for heads and deputy heads should attach to each category.

•A career ladder should be constructed that would enable any teacher to progress to the highest point in the profession. Promotion criteria should include competence and ability to cope with responsibility. Where possession of any qualification is also stipulated, opportunities should be available for teachers to acquire this through personal study.

•Government should provide support, including financial support, for the professional activities of the Botswana Teachers Union.

•There should be establishment of or more regular use of consultative machinery at all levels of the education system, including regular professional meetings in the field for teachers and heads to express their views on educational policy issues and to exchange ideas.

•The Botswana Teachers Journal should be published regularly and every teacher should receive a copy free of charge.

•There should be the creation of permanent displays, at suitably accessible teachers' centres, of educational books and materials for use in the classroom.

•The supervisory and in-service training services should be strengthened to maintain much closer links between serving teachers and the administration and to bring more frequent help and professional stimulation to the teacher in the classroom.

•Regular conferences and courses should be held at local, district, and national levels.

•A new post-secondary course should be launched to prepare teachers for the junior secondary level. It should last for two years and lead to the Botswana Teachers' Certificate. Although begun at the University, the new BTC courses should be transferred as soon as possible to a training college.

•The Ministry of Education should establish teacher training courses for practical instructors, utilising the resources of the Faculty of Education and the relevant training institutions (NCVT, BAC, BTC), jointly.

•High priority should be given to the training of vocational and practical instructors, and their schemes of service should be adjusted so as to improve the possibilities of attracting and retaining instructors.

•Botswana should develop a comprehensive range of in-service courses, including upgrading of teachers at all levels as an integral part of the teachers career structure, specialist courses, refresher courses, and courses on new techniques and curricula.

•The University should develop its role of providing professional leadership and support for the teacher education system in Botswana.

•Botswana needs to build up, though training and work experience, the capacity in various branches of applied education, such as curriculum development and course design, testing, career counseling, communication and teaching method, schools broadcasting, inspection, and so on. It also needs statistical, planning, and financial expertise.

•So far as possible decision making powers should be devolved to the level where people are most affected by the policies and decisions.

•The Ministry of Education should provide leadership in education, but should not have exclusive responsibility. Many parts of the system are managed, and indeed are best managed, by other agencies, both public and private.

•The Ministry of Education should codify its administrative procedures and responsibilities to assist in the delegation of authority.

•Policy and advisory committees, such as the National Committee on Educational Policy, should become more effective.

•A Policy Advisory Committee, composed of senior officers and serviced by the Planning Unit staff should be established in the Ministry of Education and should meet regularly.

•The professional wing of the Ministry of Education should be headed by a professional officer at the Deputy Permanent Secretary level. This wing should incorporate the officers responsible for the various levels and types of education, for professional education services, and for the inspectorate. The administrative wing of the Ministry of Education should cover resource provision to schools and organisation/staffing of the Ministry.

•Greater use should be made of educational statistics and closer liaison should be established between the Central Statistics Office and the Ministry of Education.

•Improved financial planning should be developed, to include the restructuring of the education estimates to make calculation of unit costs easier.

•Clarification of roles and specification of procedures for cooperation should be issued for the District Education Officer and local councils/education committees.

•There should be a clear definition of the respective roles of the Councils and the Unified Teaching Service in regard to teachers.

•A career structure in educational administration should be developed.

•Short training courses should be mounted in Botswana in educational administration and supervision, with more extended courses in other countries for selected persons.

Qualifications

•Education -- even the best school system one might imagine -- cannot on its own change society, and does not hold the only key to solving all the nation's problems. One should not expect too much of teachers and schools. Even if education in Botswana operated in full support of the national principles, it could not by itself bring about social change. It can only assist in the process.

•Government must ensure that costs of the junior secondary level are in fact kept low. Failure will undermine the aim of the strategy.

•Government must plan and regulate the development of junior secondary schools to avoid inefficient proliferation of schools.

•Junior secondary schools should have a distinct identity. They should be neither primary continuation classes nor watered down versions of present senior secondary schools. Present secondary schools should give up their junior secondary classes in the long run to preserve the distinctness of the junior secondary course. Otherwise, it will be difficult to establish a new, more relevant curriculum.

Annex B

ANNEX B

National Assembly Policy on Education

Changing the Goals of Secondary Education

Context

•The National Commission on Education produced the document *Education for Kagisano*. It identified a number of fundamental problems:

a. There is a gap between the quality of primary schools and the much better provided for and more costly secondary schools.
b. Schools are too separated from the world of work. There are not enough opportunities to combine study and work.
c. Most emphasis at present is given to full-time education in schools, with too few opportunities for people to continue their learning outside the formal education system.
d. Syllabuses and curricula are too academic.
e. Numerous unaided schools have been established which are of lower quality than government schools. Yet students in the unaided schools often pay more for the education they receive.
f. There is a gap in quality levels and educational opportunities between schools in rural and urban areas.

•Government has been conscious of the importance of education and the need for change, as indicated by statements in BDP Manifestos and resolutions and speeches of His Excellency the President. Criticisms from various quarters, including the National Assemby, have made clear the need for a thorough review of the education system.

Claims

•Nine years of education will be made available to all children, at first by adding two years above primary level, and later (after primary is reduced to six years) through a three-year intermediate cycle. This intermediate (junior secondary) form will narrow the present large gap between primary and secondary schools in terms of costs, standards, and orientation.

•The change from the present type of JC education does not mean a reduction in quality but rather a change in purpose. Its aims will be to provide all children with:

a. language tools needed in either further study or work.
b. a solid foundation in mathematics skills.
c. an understanding of scientific and technical subjects, based on examples in their own environment.
d. a sense of the nature of their society and their role in it.
e. an orientation toward further learning, whether formal or non-formal.
f. an orientation toward work in the real world.

•Access to secondary places will be made more equitable.

Bases for Claims

•Many of the problems are interrelated and require a combination of actions to solve them. The National Commission on Education has provided a clear set of *goals* to guide action and a *strategy* to achieve those goals.

•The Commission consulted widely with people throughout the country -- both educators and others concerned about how education should develop in Botswana -- and gathered a great deal of information.

•The result of the Commission's work is a very complete assessment of Botswana's education system (the first comprehensive review since independence).

Programme Assumptions

•The intermediate schools will be more similar to primary schools in class size, physical facilities, level of training of teachers, and in the educational objectives they seek to accomplish.

•The JS schools will be day schools rather than boarding schools, thus reducing boarding costs and increasing the links between school and community.

•The unaided secondary schools will receive gradually increasing public assistance until they are fully absorbed into the public intermediate system.

•The present system of selection will be reviewed to ensure that all qualified candidates have an equal chance to attend. During the coming years, when places in JS schools will still have to be limited, a quota system will be established to take the top students (approximately 5%) from every Council primary school into Form I.

•Those who gain entry to senior secondary must bear a portion of the cost. The present secondary school tuition fees will be adjusted upward (approximately double).

•The bursaries system will be reviewed so that no student will be excluded on economic grounds.

•Programmes of information and education will be developed to encourage personal responsibility on the part of young people to reduce drop-outs due to unwanted pregnancies.

•There will be substantial revisions in the syllabus and curriculum under the direction of a new Curriculum Development and Testing Unit at the Ministry of Education.

•The examinations system at secondary level will be substantially modified to take account of the changed goals, strategy, and structure of junior secondary education.

•The system of careers guidance in secondary schools will be strengthened.

•The respective roles of local officials (Education Secretaries of Councils, and Education Officers of the Ministry of Education) will be more clearly defined than hitherto and a circular outlining procedures for co-operation at local level will be issued.

•Administrative procedures and responsibilities will be codified as recommended by the Commission.

•Procedures for financial planning and control will be stengthened, in consultation with the Ministry of Finance and Development Planning.

•The inspectoral and supervisory cadres will be strengthened as recommended by the Commission.

•An officer will be assigned responsibility for liaison with unaided secondary schools.

•Staffing and career structure measures recommended by the Commission will be implemented.

Qualifications

•If it appears that implementation will cause the recurrent budget to grow faster than the guidelines, then the rate of implementation may need to be altered (and primary education should have top priority).

•It is essential that the costs of intermediate education be kept under tight control. Otherwise it will not be possible to make nine years of education available to all, and an important part of the total strategy will be weakened.

•While agreed in principle, the expansion of intermediate education to provide nine years education for all in the long run (including the detailed procedure for transition from the present system to the new) must be subject to much more detailed planning and analysis than provided in the Commission's report. Government has decided to accept this part of the Commission strategy provisionally, subject to the results of consultations with the public and the findings of more detailed planning.

•The concept of nine years of education for all and how to make the transition to the new system will be subject to continuing consultation with the views of parties concerned: parents, teachers, students, local authorities, and others. There will also be information campaigns and arrangements for two-way communication on the objectives of the new educational development strategy.

•How to create employment opportunities for increasing numbers who will emerge from intermediate schools so as to avoid "educated unemployment" will be subject to continuing planning and consultation. It will be extremely important for the success of the education policy to maintain a rational policy toward incomes and employment. We must avoid a situation in which incomes for a fortunate few, who receive the benefits of higher levels of education, get out of line with the general level of incomes.

•In order to make proper decisions and keep the policy moving in the right direction, it will be necessary to monitor the implementation of the proposed programme carefully, both in educational and financial terms. In addition to the continuing processes of budget estimates (annual) and planning (every three years), Government will conduct a major reassessment of educational policy and strategy in 1980, 1985, and 1990.

Annex C

Aims of the Nine Year Programme

1. *to gain knowledge and understanding of Tswana culture, language, literature, arts, crafts, and traditions.*

2. *to understand and fulfill political, economic, and social obligations in the local community.*

3. *to understand and fulfill political, economic, and social obligations in the nation.*

4. *to understand and fulfill political, economic, and social obligations in Africa and the world.*

5. *to understand English and use it appropriately, as a medium of continued education and as a vehicle of communication in the community.*

6. *to apply knowledge and imagination to avoid or ameliorate problems in household management.*

7. *to apply knowledge and imagination in carrying out everyday commercial transactions in order to purchase and use goods and services wisely.*

8. *to understand the methods of science and mathematics and their influence on human life in everyday activities.*

9. *to acquire skills in food production for self-reliance and self-sufficiency.*

10. *to acquire skills in industrial arts for self-reliance and self-sufficiency.*

11. *to be able to observe and record accurately events and activities in life.*

12. *to be able to think rationally and logically.*

13. *to be able to express thoughts clearly, and to read and listen with understanding.*

14. *to effectively use skills and instruments in activities connected with later studies or out-of-school work.*

15. *to gain the understanding and attitudes of successful workers.*

16. *to be able to assess personal achievements and capabilities realistically in pursuit of appropriate employment and/or further education.*

17. *to develop a sound moral code of behaviour compatible with the ethics and traditions of Botswana.*

18. *to develop respect for other persons and to live and work cooperatively with others.*

19. *to learn about the conditions conducive to successful family life.*

20. *to develop good physical health and fitness.*

21. *to develop psychologically conducive to good mental health.*

22. *to develop the capacity to appreciate beauty in literature, art, music, and nature.*

23. *to be able to adapt to social, economic, and technological change by adjusting acquired knowledge to new situations and by taking appropriate action.*

24. *to acquire entrepreneurial business skills to participate in national and local economic development.*

25. *to appreciate the climatic and ecological conditions prevalent in Botswana.*

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Annex D

ANNEX D

School Interview Guidelines

•What have you heard about the national implementation of the new two-year JC programme?

Previous Context

> The purpose of this section is to assess the environmental situation prior to implementation of the nine year programme. In some cases, the programme may already be in place, but in others, implementation may be still a "plan."

•What has been the educational programme available here? (Both in terms of structure of the subsystem -- subjects, streams, teachers, pupils per class, materials, textbooks -- and the adequacy of the programme)

•Were there any specific conditions for this area which would recommend (or not recommend) the new two-year JC programme as proposed? That is, do you feel there was a reason to have a new junior secondary programme in this area? What were the reasons? Who wanted it? Who didn't want it and why?

•How has the school been administered? (Organisational structure, links with Gaborone, links with community)

•Can you describe a specific example of good administration from your educational experience? How did it arise? What happened as a result? Is this typical?

•Can you describe a specific example of school administration which needs improvement from your experience in the school system? How did it arise? What happened as a result? Is this typical?

•What options have students in this area had if they did not pursue the Junior Certificate programme? That is, before the new JC programme, what did the students do after primary school in this area (or outside this area)?

•What options have students in this area who have completed the JC had in terms of educational/training opportunities (other than Cambridge)?

•Do you think there were other options for Government besides the nine year educational programme? That is, do you think there were other better ways to address Botswana's educational needs in addition to or in place of the expansion of the junior secondary programme?

Implementation

In this section, we are assessing initial impressions of programme implementation or expectations about implementation. What are the claims for the "fit" of the new programme with the old?

•How will (or did) things change with the new JC programme? In what ways will the new nine year programme differ from the old JC? What other changes do you expect will occur or be required as the new programme evolves?

•What resources and facilities are available for the new two-year JC programme? What is required to carryout the nine year programme? What is it that you need or expect to need to carry out the new JC programme successfully that you don't have now?

•How many staff are available now? What areas do they teach? What are their qualifications? What new staff are required? Which teachers volunteered to be part of the junior secondary programme and which were drafted (any bad feelings)?

•Will there be any areas in which costs for the operation of the school will increase (have increased) with the implementation of the new nine year programme?

•Will the administration of the school change? (Structure and style) For example, has the staff changed? Has the administrative routine changed? Did timetabling change? Was there more contact with the community? Was there a change in the way the school was run (more authoritarian or more open, etc.)?

Programme Activities

In this section, we try to find out what the "programme" is that has been implemented. What are the claims about the internal operations of the programme?

•Describe a typical day from the teacher's (headmaster's, student's) viewpoint.

•Do you perceive any problem in the school? (Delinquency, teacher attendance, books and materials available, etc) What would you do to improve the situation? Who should do something about it?

•Is there any particular characteristic of the school which leads you to believe the nine year programme will work well? What would hinder its effectiveness?

•How many students are accepted into Form I in this school? Where do they go otherwise? Should these alternatives receive more attention or resources?

Impact

Most claims about the programme will focus on perceived impact or expected impact. Here we try to get some assessment of progress or attitude about the likely effectiveness of the nine year programme.

•What will be the educational result of the JS programme? What will it accomplish (positive or negative)?

•If a student does the JC, does he/she lose out on anything? Are there other options for a "good" life in this area?

•What financial costs are incurred by the student (parents)?

•Do the parents lose anything by keeping their children in school through the nine years?

•What is the community attitude to schooling (at each level -- primary, junior secondary, senior secondary)?

•Are there many unemployed JC graduates in the area? Are there many unemployed primary school graduates in the area?

•Where would JCs be employed? What are the career possibilities in these opportunities? Where would primary school graduates be employed? Where would JCs go for additional training? Where would primary school graduates go?

•Do you think the nine year programme is justified or unjustified? In what ways?

•Do most graduates leave the area? Where do they go?

JSEIP

The JSEIP is only one part of the JS programme. Because it is centrally focused, except for the inservice component, these questions may be useful only for those contact points of the project.

•Have you heard of the JSEIP Project? What do you know about it?

•If you were in charge of the JS programme, what questions or issues would require your greatest attention? Why? What would you do about them? Would help from outside Botswana be required? In what form?

•If you were in charge of JSEIP, what would you do? Would you design JSEIP differently?

Feedback

> An eventual goal for the evaluation activity is to set up a feedback system, whereby evaluative information gets to and from schools on a regular basis.

•What information do you get from the Ministry of Education? In what form does it come and how often?

•Is there information that you require that you don't get? What is it?

•In terms of the policy of the school, what document or person has had the greatest influence? (Not the shoulds but the actual)

•In terms of day-to-day activities of the school, who determines the rules and regulations of the school? Are these negotiable?

•What information/data do you send regularly to the Ministry? How is it sent? Whom would you send it to?

•How often do you contact the MOE? Whom do you contact? Which departments? Are you satisfied with how quickly and effectively they respond to requests or issues?

•If you had an administrative problem, where would you go for help? Who could you rely on?

•If you had an educational problem, where would you go for help? Who could you rely on?

•If there was a problem in the community which affected the school, where would you go for help? Who could you rely on?

Annex E

ANNEX E

School Visitation Report and Recommendations

Prepared for the Curriculum Coordination Steering Commitee
by K. Noel and D. DuBey on 16 April 1986

During the months of March and April 1986, members of the JSEIP advisory team, education officers, and Molepolole College of Education lecturers conducted a fact finding tour of areas where Education Centres are or will be constructed. The intention of the school visits was to combine a needs assessment exercise to determine in-service priorities and to obtain feedback on the newly implemented nine year curriculum in the schools. Also planning officers in the areas were consulted.

As part of the visits, two types of questionnaires at each school were distributed: one for the Headmasters and one for teachers. To date, 20 of the Headmasters' questionnaires and 154 of the Teachers' questionnaires have been returned. An analysis of these questionnaires is being undertaken. When completed, the results will be distributed to the Curriculum Development Unit, the Planning Unit, Molepolole College of Education and the Department of Secondary Education. These will be particularly useful for purposes of inservice.

In addition to the completion of the questionnaires, teachers participated in three hour discussions with our representatives concerning the implementation of the nine year curriculum. At each location, teachers were divided into groups by subject areas to identify curricular strengths and weaknesses within their content areas. They then reported their findings to the group as a whole.

Certain key problems were mentioned repeatedly in most schools. These issues and problems, gathered from both the written and oral reports of these group sessions, are sumarized below.

1. Standardization

Hours in Class. From headmasters as well as teachers, we find that the number of hours spent studying a particular subject varies from school to school as much as 30 % (e.g., English periods may vary from 7 to 12 hours per week and Social Studies may vary from 4 to 7 periods per week). Number of hours per subject across schools needs to be standardized. Unless this occurs, subject panels can not give consistent guidance to teachers regarding the amount of time to spend on a certain topic.

Time for Teaching. All subject teachers agreed that they either need more time to teach their subjects or the content of the subjects must be reduced. Currently, to complete the curricula represented in the syllabuses, teachers cannot go into the depth they feel is required for some topics without neglecting other topics.

Unit Guidelines. Teachers want guidelines regarding the depth in which they are expected to go in teaching a subject. This guidance could be presented via syllabuses which both present specific objectives (see Clarification below) and suggest the amount of time that should be spent on each topic. Especially for untrained or inexperienced teachers, syllabuses should suggest what should be taught in weekly or bi-weekly increments.

Revision of Materials. To the extent possible, syllabuses across curricula should be standardized so teachers can easily read and understand what and when various topics are being taught in subject areas outside their own.

2. Clarification

Objectives. There are many things that need to be clarified in order to ensure that students learn. A primary request of teachers has been to "tell us exactly what you want us to teach." The key to any kind of clarification strategy are good, solid objective statements of what students are expected to know and do by the time they complete a unit of study. Teachers currently have insufficient guidance as to what aspects of a topic should be taught.

3. Examinations

What will be tested? This question is of paramount interest to teachers everywhere. Tests are the current standard by which both teacher and student success is judged. Obviously, the quality and relevance of examinations are directly linked to the adequacy of curricular objectives. When both of these express what is to be learned, then many other issues such as teacher training, curriculum integration and continuity, and quality control can start being systematically addressed.

4. English Communication

Language Proficiency. All teachers agree that language deficiencies in English are impeding the progress of children in schools.

The teaching of the fundamentals of English communication must not be seen as the domain of one subject area (i.e. English). Every subject, if it is properly taught, has its own unique English vocabulary. Every subject teacher must take responsibility for not only teaching that special vocabulary but also integrating it into the student's working knowledge of English in a meaningful and correct way. Without being able to speak, read, write, and/or understand English, students are unable to reach their potential in any discipline and the many other trappings of "quality" education become meaningless.

5. Subject Curriculum Revisions

Social Studies. As everyone knows, the social studies curricular materials has come under steady attack. The problems stem less from the fact that it is a "new" subject than from the fact that it combines two previous subjects. Such a change requires many changes both from a curriculum development perspective and a teaching perspective. From the Ministry and subject panel levels to the school teaching level, changes have occurred rapidly. The result has been a curriculum, including syllabus, teaching materials, and teaching skills, which needs to be revised and improved. Most of the former geography and history teachers who are teaching social studies do not feel comfortable with the subject or have an incomplete understanding of the way it should be taught.

Setswana. Setswana suffers from several primary problems.

a. a packed syllabus

In reducing the three year junior secondary syllabus to a two year syllabus, little or no content was deleted. In fact, certain topic areas such as culture were added. Thus, teachers find the new two year syllabus very difficult to teach.

b. cultural issues

Teachers complain that cultural issues were added to the curriculum without providing teachers with adequate resources or guidelines for teaching those issues.

c. no motivation

According to many teachers' reports, by the time students reach the secondary level, they see no personal benefit in taking Setswana. Setswana is the mother tongue of most students. They have been speaking it all of their lives. They know that there are few if any jobs in the formal sector that require Setswana. Even teachers of Setswana see their job as a dead end.

d. grammar vs. other subjects

Currently, there is a great deal of emphasis on the teaching of grammar in the Setswana course. Many teachers are comfortable with this. They feel that grammar is the fundamental structure on which all language teaching is built.

Others say that most students, by the time they reach Standard 8, have little difficulty expressing themselves in either oral or written Setswana. They feel that, while minor grammatical refinements could be taught, in depth teaching of grammatical structure should be left to the senior secondary or even university level. They say that grammar is presently robbing them of the time and opportunity to teach students more about the cultures of Botswana. Only when Setswana can be seen as an interesting and relevant aspect of the curriculum will it be able to generate the desired motivation and learning among students.

e. a multi-cultural society

Little formal attention has been paid to the variety of cultures and languages that abound in the schools of Botswana. In particular, the variety has not been reflected in the curricula of either primary or secondary schools. Teachers complain that students whose first language is neither English nor Setswana suffer dramatically when it comes to learning the basic skills. Because basic skills are critically important for further learning, few of these students ever do well enough in primary school to continue to junior secondary. Teachers have suggested that teachers in the early primary years be trained to teach two levels of Setswana - Setswana as a first language and Setswana as a second language. They also suggest that if Setswana teachers are to teach about Botswana's cultures, there must be a greater provision of support materials for teachers who do not know all aspects of those cultures.

f. taboo topics

Teachers also complained that certain topics listed in the syllabus are considered by parents and community members as being inappropriate topics for school. This complaint especially centers around the initiation ceremonies for boys and girls. Often teachers know nothing about the topic and find that students' parents won't discuss the topic with them.

We must make sure that, in the process of teaching about a culture, we don't destroy some of its fundamental elements.

Agriculture. The new syllabus for Agriculture was written with the nine year curriculum in mind. Therefore, many of the concepts which were originally in the old Form I syllabus are to be taught in the earlier standards. This is good.

The difficulty with the syllabus is that it will be several years before students entering Standard 8 will have had the benefit of the nine year syllabus or will have learned the prerequisite skills necessary to handle the current Standard 8 syllabus.

Teachers want some guidance on how they are to teach students over this transitionary period. Some are simply going to the old Form I through III sylabuses and are teaching them at a very accelerated pace. They are not satisfied with this but that's all they can think of. Others are using the nine year syllabus but, to start, are reaching back to things covered in Standards 5, 6, and 7 for topics to teach. When they are satisfied that the students have the basic skills, they continue to the Standard 8 syllabus. Both of these techniques are unsatisfactory because it is impossible to teach all that needs to be taught in two years.

It's likely that this problem will only last two or three years since students will eventually start entering Standard 8 with some prerequisite skills.

Religious and Moral Education. Since R.E. has become one of the examined topics, R.E. teachers who, for the most part, have no formal teacher training in the subject are demanding more time to teach the subject.

We must consider the purpose of teaching R.E. in the schools, determine whether it really needs to be examined, and assess whether it should be allocated the same amount of time in the schools as subjects such as agriculture and home economics.

6. Communication and Inservice

Information. Information about the new nine year curriculum and its ramifications is not getting to the field in a consistent manner nor is it presented in the depth required to implement in a consistent manner. Remote areas have real difficulty in being informed of events (such as workshops) in time to attend. Suggested approaches for addressing these problems would be regular radio broadcasts and newsletters.

Consultation. Teachers, headmasters, boards, education officers, and everone in between want to be consulted about the changes that are to affect their lives. A suggested approach for addressing this problem is regional and national meetings with representatives of the various educational components (e.g., annual or bi-annual Curriculum Coordinating Committee meetings).

Two-way Communication. Teachers feel that they have a great deal to contribute in terms of implementing the curriculum but do not feel they have adequate access to lines of direct communication. We need to develop a systematic way of gathering data from the field and to disseminate information. One approach for addressing this problem is to use all inservice workshops as opportunities for gathering suggestions and identifying problems. Another would be to have regional secondary education officers. A third idea would be to designate one or two persons who would visit schools throughout the country to collect information from teachers regarding issues and problems and to report to the CCSC on a regular basis.

Information Exchanges. Teachers feel the need to share ideas both locally and nationally. This could be done through workshops as well as a through the establishment of a national clearing house dedicated to obtaining, developing, and disseminating successful materials and ideas of teachers in the field.

Staffing. There are serious problems with staffing from the Ministry to the school levels.

At the Ministry level, there are not enough staff to visit schools on a regular basis while executing the day to day business required of education officers at the Ministry. This shortage leads to several critical problems.

a. Teachers feel neglected in the field.
b. Insufficient numbers of professional staff are available for training.
c. The CDU which is nominally responsible for the nine year curriculum is unable to assume that responsibility because of lack of trained staff. As a result, members of the CDU are asked to speak about (and defend) a nine year curriculum which they did not develop.

At district and school levels, there is not an equitable distribution of qualified teachers. Some schools have almost 100% trained teachers while other schools have almost no trained teachers.

Workshops. Teachers really want more workshops and more contact with people who can help them do a more effective job. When teachers say this, they also emphasize that they are talking about workshops which are well-planned, worthwhile, and relevant. Most teachers say they have spent too many hours and days attending workshops that accomplished little or nothing.

Transport of Supplies and Equipment. Teachers are demanding that they receive the necessary curricular materials to be used during a term before that term begins. They complain of not receiving worksheets, textbooks, and supplies well enough in advance to know how to plan lessons adequately. Remote areas especially have difficulties with reliable transport.

7. Integration

There are two types of integration with which teachers are concerned: longitudinal integration (Standards One through Ten) and horizontal integration across subject areas.

All teachers at junior secondary level are concerned with students who are not adequately prepared to learn what the syllabuses outline.

Many teachers who try to integrate their subjects with others often do not feel trained to do so or are rebuffed by those who jealously guard their subject area.

Teachers at the junior secondary level need to be instilled with a willingness to communicate and cooperate with those in other subject areas and to be given the tools to effectively do so.

8. New Subjects

As new subjects are developed, a rational, systematic plan for their smooth introduction to the nine year curriculum must also be developed.

9. Rationalization of Philosophy, Curriculum, and Teaching Methods

The nine year curriculum is purported to be child-centered, relevant and practical. Yet many of the curriculum development approaches and teaching methods do not reflect this philosophy.

We talk about individualization, guidance and counselling, and continuous assessment. However, teachers are presented with syllabuses that are not conducive to these kinds of things.

We need people to look into the matter of ensuring that what is being done and what we are asking teachers to do is consistent with the overriding philosophy of the curriculum.

10. Quality Control

The ways in which we develop materials, organize and conduct workshops, and develop examinations among other things need to be seriously reconsidered. Perhaps if there were a mechanism for monitoring these types of activities and, perhaps, providing guidelines for their development and implementation, the quality of the resulting products would be consistently better.

Right now, there are enough negative examples of products in teachers' recent memories that the Ministry suffers a credibility gap in certain areas.

We need to seriously look into a systematic formative evaluation and field testing mechanism that is both effective and efficient.

11. Production Units

Currently, there are a number of production units including TAPU which are in operation and there are more on the horizon. We must ensure that current units are organized to accommodate the needs of the nine year programme and that new units do not duplicate efforts and facilities needlessly.

Chapter 4

Evaluation Task Force: Tasks and Procedures

Tasks

General Tasks

Phase 1. Background and Baseline Information

Phase 2. Development and Address of Evaluative Propositions concerning the Status of the JS System

Specific Tasks: Phase 1 (Tentative and Incomplete)

The tasks are described in terms of the chapters of a report, which is the formal product of the first phase of work of the Evaluation Task Force. The topics are suggestive; the effort is unlikely to be this comprehensive.

Foreword (PR)

I. *History of CJSS in Botswana*

- A. Historical Context for the Emergence of CJSSs (DT)
- B. Community Management of Schools (FM)

II. *Organisational Aspects of CJSS*

- A. Ministerial Organisation for the JS Programme (DM/WS)
- B. Planning for JS Schools (AH/DT)
- C. Regulations and Governance of JS Schools (GM)
- D. School Administration (WG/JMcD/SHA)
- E. Organisational Considerations in Curriculum Development (WS)
- F. Examination Administration (BvR)
- G. Relationships between Brigades and CJSS (DT)

III. *Overview of Curriculum*

- A. Perspectives on the 2-year JC (FL/CDU)
- B. Contents and Determinants of Curriculum (PR/BP)
- C. Curriculum Relevance (PTMM/JT/UK)
- D. Curriculum Development Procedures (KN/CDU)
- E. Non-Formal Education for JC (CDOs in DNFE)
- F. Gender Issues in Curriculum Development (Emang Basadi)
- G. Special Education
- H. Materials Production Capability (BV)

IV. *Subject Areas*

- A. Mathematics (VM/SR)
- B. English (AM/SC/FS)
- C. Reading Comprehension (RD)
- D. Attitudes toward Poetry (DR)
- E. Setswana (NR/KN/DN)
- F. Social Studies (PR/DM)
- G. Religious Education (KR)
- H. Technical Studies (FW/ES)
- I. Agriculture (CM)
- J. Science (FL/MK/MN/LL)
- K. Home Economics
- L. Bookkeeping & Commerce
- M. Art (LI)

V. *Teachers*

- A. In-Service and Pre-Service Training (CM)
- B. Proficiency in English (TM)
- C. Proficiency in Setswana (MM)
- D. Proficiency in Mathematics (LM)
- E. Science and Maths Teacher Training Needs (MK)
- F. JSEIP Assistance to Schools (DdB)
- G. Descriptive Statistics of the Teacher Corps (UTS)

VI. *Students*

- A. Review of PSLE Exam for Entrance to JC (NL/SR/RTC)
- B. Transition from Primary to JC in Science (JM)
- C. Transition from Primary to JC in Social Studies (JT/PR/DM)
- D. JC Exam Certification of 9-year Basic Education (SK/JB/RTC)
- E. Comparison of Performances in the New vs Old JC (WD/BA/RTC)
- F. Flow Analysis (Statistics)
- G. Tracer Studies of Standard 7 and JC Leavers (UK/NIR/PB)
- H. Guidance and Careers Counseling in JS Schools (SK/RTC)

VII. *Finance*

- A. Budget and Expenditures for 1986-87
- B. Internal Rate of Return (AH)
- C. School Budgets and Accounts

Working Procedure

Review Panel Chaired by CEO/CD&E

↑

General Coordinator

Evaluation Advisor

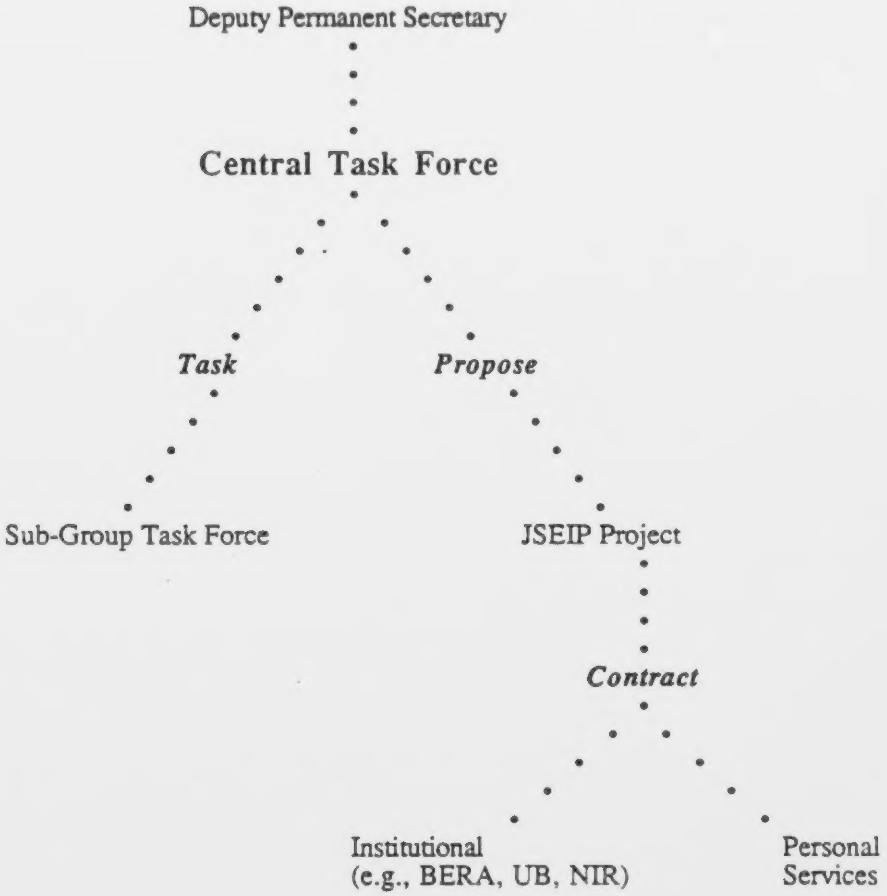
↑ ↓

Coordinator, Task Force on ____________

Collaborators

Assistants

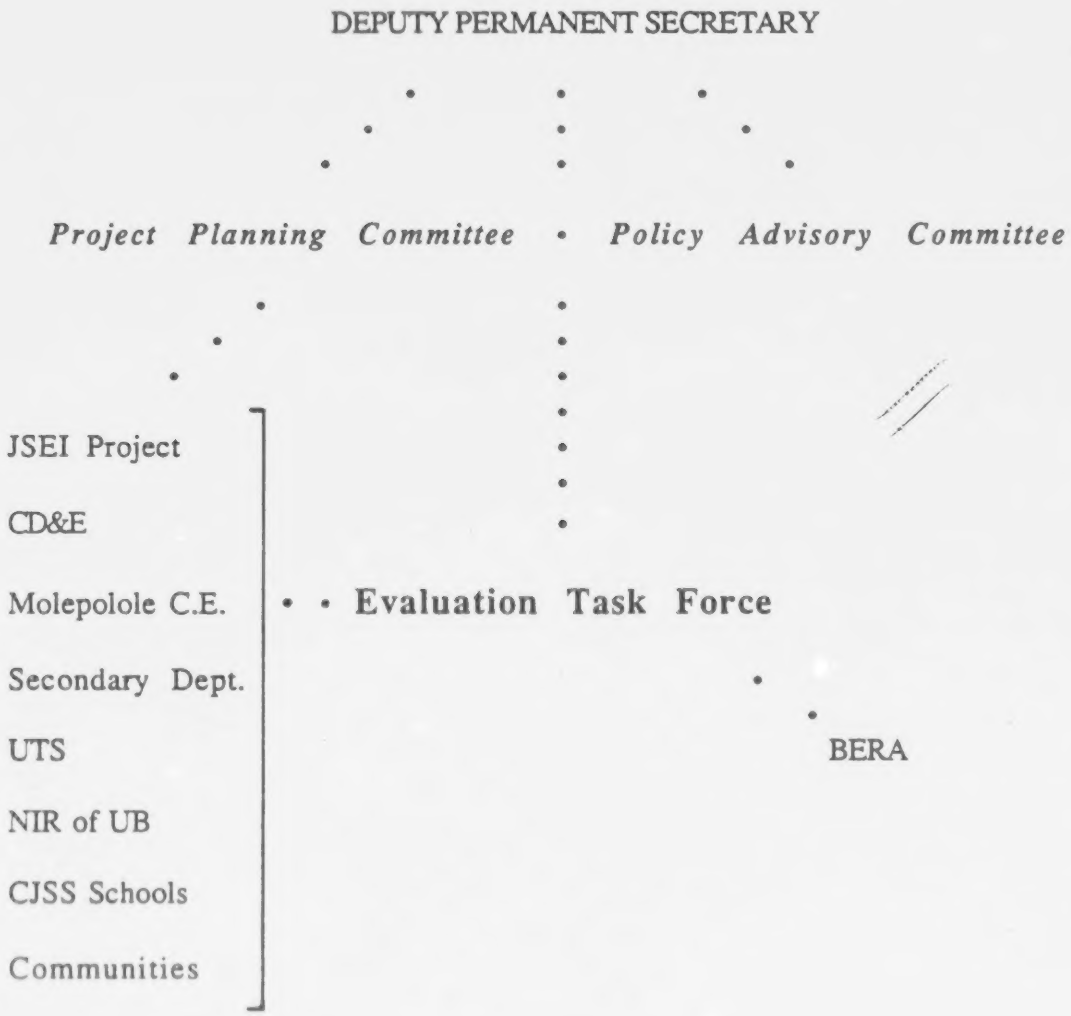
Assignment Procedure


Deputy Permanent Secretary
Central Task Force
Task
Propose
Sub-Group Task Force
JSEIP Project
Contract
Institutional
(e.g., BERA, UB, NIR)
Personal
Services

Report Contents (Approximate)

- Critical aspects, issues, and problems in the area under study
- JS Programmatic argument focused on these concerns
- Data, opinions, attitudes in the area
- Suggested dimensions for the evaluation -- what are the key propositions

ETF Relationships with Other System Offices


DEPUTY PERMANENT SECRETARY
Project Planning Committee
Policy Advisory Committee
JSEI Project
CD&E
Molepolole C.E.
Secondary Dept.
UTS
NIR of UB
CJSS Schools
Communities
Evaluation Task Force
BERA

Possible Consultants (Examples)

Evaluation Framework

- Dr. Yvonna Lincoln (University of Kansas)
- Professor Garrett Foster (Florida State University)

Action Research Design

- Professor Chris Argyris (Harvard University)

Organisational Analysis

- Professor John Meyer (Stanford University)

Classroom Assessment

- Dr. Anthony Nitko (University of Pittsburgh)

National Examinations

- Professor John Hattie (University of Western Australia)

Curriculum Development Issues

- Dr. Sivasailam Thiagarajan (Institute for International Research)
- Professor Walter Dick (Florida State University)

Curriculum Development System Issues

- Dr. Joane Nagel (University of Kansas)

Multivariate Statistical Issues

- Dr. Pieter Kroonenberg (University of Leiden)

Classroom Observations

- Dr. Stephen Ball (King's College)
- Dr. Diane Argyris (Harvard University)
- Dr. John Gay (Consultant, Lesotho)
- Professor Michael Cole (University of California, San Diego)
- Dr. Sylvia Scribner (City College of New York)
- Dr. Rosemary Davis (University of Botswana)

Guidance and Counseling Issues

- Dr. Dumisile Myeni (Swaziland Ministry of Education)
- Ms. Zylpha Mapp-Robinson (Florida State University)

Chapter 5

Assessing the Achievement Baseline for CJSS: The IEA National Testing Programme

Assessing Achievement

Introduction

The Project Agreement for the JSEIP Project in Botswana (Project No. 633-0229; signed by USAID on 13 December, 1984) specifies the establishment of baseline data "to assess progress toward achievement of project objectives." One of the "principal sources of evaluative criteria" was identified as "[s]tudent achievement on national and international normative exams." The document goes on to say "[t]he Junior Certificate examination will be used as one of the evaluative means." This paper addresses the baseline requirement: the special problems surrounding the national JC exams, some of the logistical difficulties that would be encountered in any alterations to the exam content and procedures, and a plan, which incorporates the "international normative" aspect of the ProAg recommendations.

Background

The JC exams have many problems that render them rather mediocre indices of student achievement. Some of the problems of the JC are best understood in their historical context, because the JC has undergone many changes, few of which were intended to address any of its technical inadequacies. The changes, however, have formalised many institutional practices that will be hard to modify further even for their potential technical gains.

Prior to 1961, all secondary school students in the High Commission Territories of Bechuanaland, Basutoland, and Swaziland sat for the JC exams administered by the University of South Africa. An exams council for the JC was first established in 1961 as the High Commission Territories Examinations Council. Two years later, in 1963, this Council became associated with what evolved into the UBLS and by 1966, was renamed the University of Botswana, Lesotho, and Swaziland Schools Examinations Council. The UBLS-SEC Council had an external governing board, composed of representatives from the educational systems of each country and chaired by an appointed representative of the Vice-Chancellor of UBLS. The "curriculum" to be examined was determined by national subject panels whose recommendations were sent to regional subject panels for final approval. Although considerable resources were invested in the establishment and operations of the Council, it never seemed to be fully effective.

There was great hope for the Council, including the expectation that someday it would take over the COSC from Cambridge, thus bringing together local curriculum content determination and the assurance of "international standards." The Deakin report in 1973 noted some of the problems in the Council and recommended the School Certificate takeover should be delayed. As further noted in the Cieutat-Snyder report in 1975, the credibility of the Council and the JC exams was under challenge about this time from many sources within the educational systems of the three countries. The Cieutat-Snyder report recommended the devolvement of the Council into a federation of strong national offices, which would provide for local sensitivities and requirements, while underwriting the international certification of the course. Donors, however, were reluctant to provide assistance to this regional effort, primarily because of the many problems which were emerging from the UBLS itself. In 1976, the Secondary Curriculum Task Force of the National Commission on Education formally complained that "[t]he organisation and administration of Junior Certificate Examinations by the Examinations Council has been marked by frustration and anger on the part of the schools in the three countries," and went on to indicate that "the Junior Certificate Examinations have lost much of their credibility." Just as the regional university had crumbled in late 1975, with the pull-out of Lesotho, so too did the Maseru-based UBLS-SEC, this time with Botswana pulling out in 1979, fed up over the numerous errors and problems with the Council.

In the wake of this collapse of the JC exam establishment, Botswana took over its own exams, hastily creating a national mechanism for exam administration. Quite naturally it turned to its national panels to create exam subcommittees to develop the papers, a responsibility they still hold. From the recommendations of the National Commission, an Exams Unit was formally organised from the primary and secondary units that had been hastily formed in 1979 and linked loosely to the also-recently-nationalised Research and Testing Centre (formerly the Regional Testing Resource and Training Centre of Malawi, Botswana, Lesotho, and Swaziland). Both of these units eventually were united under a curriculum development and testing division, which evolved into the Department of Curriculum Development and Evaluation.

The Exams Unit continues to handle the administration of all national exams, but the RTC expertise in measurement has been called upon mostly at the primary level exams and hardly at all at the JC level. Through the efforts of the RTC, there has been some improvement in the primary leaving exams, but the JC exams have received variable attention, depending on the insights and awareness of the particular panel. One of the major criticisms of the JC exams has been the emphasis on knowledge and memory items to the exclusion of reasoning and 'thinking' exercises. Interestingly, the History Panel took this problem seriously and solicited assistance from the Exams Unit. An exam, sampling all levels of skills, was created, and teachers were alerted to the changes in the exam and the consequent required changes in the teaching strategies. Numerous workshops were held and supported by the teaching cadre. It has long been claimed that the exam drives the classroom curriculum in Botswana. Somerset (1977), with the National Commission, had argued for the retention of the reasoning exams in the PSLE on the basis of this hypothesis. As it transpired in the History saga, the raw scores on the JC exam fell dramatically, simultaneously substantiating that the new items were 'different' and the teachers couldn't or weren't "teaching to them." Under pressure, the History Panel reverted to old item types. Mathematics and Science have been more successful in bringing in reasoning type items to their exams, but the difficulty levels have been selected to avoid embarrassment. The moral of the story seems to be that teachers **teach the exams** (by using old exams), but do **not necessarily teach the skills** implied by the exams. Critics of testing would be vindicated in this context!

As cited in the 1980 *Department of Curriculum Development and Evaluation Report* (written under the direction of J.R. Swartland; p. 1) the Department understood its role, as derived from the National Assembly's *National Policy on Education* (Government Paper No. 1 of 1977) [bold emphases added]:

> (a) to effect 'improvements in the quality of primary education;'
>
> (b) to direct 'substantial revisions in the syllabus and curriculum at the **intermediate** and senior secondary levels' (Section 35);

(c) to help to bring about 'changes in the examinations system to reflect the new curriculum and to provide for continuous assessment of pupils' progress' (Section 15c);

(d) to administer the Research and Testing Centre (Sections 36 and 70c), whose work will ultimately include the assessment of **secondary as well as primary education**; and

(e) to contribute to the 'preparation and adequate provision of better teaching materials developed for Botswana' (Section 15d).

The Department undertook the curriculum responsibilities at the primary level, but it was not until the October 1983 conference of Chief Education Officers that the Curriculum Development Unit of the CD&E became involved in the extension of basic education to nine years. As pointed out in the CDU *1984/85 Report*, "[s]ince then, there has been on-going consultation and cooperation between the curriculum developers in the unit and the subject education officers in Secondary Education" (p. 4). This cautious foray into the intermediate secondary area by the CD&E has virtually left the JC in the hands of the National Subject Panels, negotiated between the primary and secondary level groups. With the limited number and the primary-level interests of CDU staff, it is unlikely that clear organisational responsibilities will emerge in the near future. The JC will continue to limp along, even though the structural change from 3 years to 2 years and the notional change to a 9 year basic education should have entailed significant developments in the JC curriculum.

The RTC has made some inroads in the potential improvement of the new 2 year JC examinations, and their presence on many of the exam subcommittees may bode well for the future. However, there is no useful past data to provide a baseline for monitoring improvements. Much of the data are gone, and that which remain are aggregated in 'standardised' form and/or suspect. The days of the UBLS-SEC were exemplars in how-not-to-run-a-national-exam, and the more recent efforts have emphasised the practical exigencies of the programme, rather than technical improvements to the exams. The single most important purpose of the JC examinations has been the use of the aggregate score for selection of JS candidates into the limited senior secondary places. There has been little systematic attempt to sample items reflecting a structured curriculum or measure predetermined programme objectives. No historical item bank is retained, because the exams are used in the schools as part of the teaching process. Since, each year, the exams are drawn up by "subject-matter experts," their validity for the curriculum and their generalisability for the programme have been taken for granted. No one can say how effective this approach has been, but the use of JC results in a time series aimed at the assessment of educational quality and progress would be uninterpretable. It would even be difficult to make statements about the specific achievements of students in any one year.

The Plan

This plan is based on the following considerations:

(a) a baseline for the assessment of progress in educational achievement must incorporate the national exam scheme in order to provide some lasting usefulness;

(b) the JC examinations from year to year are incomparable measures of achievement;

(c) within any year, the JC examinations inadequately assess achievement in the subject areas;

(d) international norms for subject matter achievement would be useful, but are not presently available; and

(e) given that the new JS programme was derived from the recommendations of the National Commission on Education (1977), it would be useful to have data comparable to the evidence used by the Commission to make its recommendations.

Within the present system and historical context, it would be difficult to address all of these concerns in efficient fashion. Underlying all intentions and interventions is the requirement that any plan must result in minimal obtrusiveness. The mandate of the ProAg is not directly translatable into a mandate within the system. A great deal of accommodation and negotiation will prelude any changes.

The basic element of the plan is the administration of the IEA tests in mathematics, science, reading comprehension, and possibly, word knowledge (developed by the International Association for the Evaluation of Educational Achievement - IEA). These tests can be used to 'anchor' the JC results, as well as on their own for international comparisons, and provide a baseline comparable with the information used by the Commission in its evaluation of the Botswana primary and secondary educational system (Husen, 1977). Yearly administration of the tests, under security conditions, will provide useful information about the validity and comparability of the JC examinations from year to year. The availability of both international and historical norms will provide a valuable baseline for the immediate assessment of the new JS programme.

The last year for 3 year JC graduates and the first year for the graduates of the 2 year JC is 1987. Accordingly, by implementing the IEA test administration this year, there will be a chance of getting some useful comparative information about the old programme versus the new (first iteration) 2 year JC programme. Has the loss of a year seriously affected the academic achievement levels of the graduates? At what educational cost has the new programme been adopted? A modest loss would indicate that the certificate from the new programme was close to the old standard, an important factor for the job market. A large loss would underline the need for curriculum improvements to be addressed by JSEIP and the cognisant departments in the Ministry. The base of results would also serve for future comparisons as the JS intake expands to meet the requirements of the universal 9 year basic education programme.

The range of suggestions for the implementation of this plan are presented in Annex A (IEA Tests) and Annex B (Junior Certificate Examinations). Annex C presents the IEA tests (not in all editions of this paper). In addition to the IEA anchor tests, the 2 year JC examinations in mathematics, English language, and science would be supplemented by items from the 3 year JC and old JC items in those subject areas. The 3 year items allow direct comparison with the 3 year graduates of 1987, and the old JC items permit other comparisons with the past. The reason for both sets is the concern over the security of the 3 year examinations, which are given first, before the 2 year JC. Those items that are similar may be seen by the 2 year candidates before sitting their exams. Although none of these items would be included in aggregate scores, there usefulness for comparisons could be partially affected by leaks during the week-or-so lag between exam administrations. The old items provide another check, although they may also have been used in class study of the subject. There is no foolproof way of equating the two 1987 JC examination programmes. The Panels have rejected the use of the same examinations for both 2 year candidates and 3 year candidates because of the administration and security difficulties and the belief that the programmes are not comparable (primarily due to the loss of *time on task* in the 2 year programme). Teachers in Gaborone-area CJSSs have indicated that they attempted to teach the same course, but moved faster in the 2 year group. It will be very interesting to see what impact the contracted programme has had. However, the most important outcome of this comparative effort will be the establishment of 3 year and 2 year JC baselines for future comparisons.

To fully implement this plan it will be essential to gradually improve the JC examinations, tying them more clearly and directly to curriculum. The IEA tests will serve only the short term, and they are not without their difficulties as well. Part of the solution may lie with the new graduates of Molepolole College of Education. If those future teachers are drawn on in test development of the JC exams, perhaps some improvement in procedure and content may eventuate. For the implementation of this plan, the teaching practice students of MCE will be utilised for the administration of the IEA tests. This administration will constitute part of the their requirement for the course and will give them valuable experience in the problems associated with national exams administration. These students will constitute a valuable future resource for the education system. If linked to a concerted effort at JC exam improvement, which would necessitate both greater technical expertise and better organisational support, the quality of evaluation feedback may improve over the years to yield a more responsive and effective junior secondary education system.

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Annex A

IEA TESTING PROGRAMME

Administration:	May, 1987
	Administered by Molepolole student teachers
	Each class given 3 tests randomly distributed within the class
	All Junior Secondary Schools
Tests:	Reading Comprehension (36 items)
	Mathematics (24 items)
	Science (34 items)
Comparisons:	3-year vs. 2-year (National and by school)
	3-year '87 vs. 3-year '76 (National)
	2-year '87 vs. 3-year '76 (National)
	International Norms

Annex B

JUNIOR CERTIFICATE EXAMINATIONS PROGRAMME

Focal Exams:	Mathematics (3-year JC)
	English Language (3-year JC)
	Science (3-year JC)
Modifications to 2-year JCE:	
	Mathematics = 2-year Exam plus 10 items from 3-year Exam and 10 items from '86 JCE Math Trial Test (Form II and Form III)
	English Language = 2-year Exam plus 7-8 items from 3-year Exam
	Science = 2-year Exam plus 10 items from 3-year Exam
Anchor Tests:	3-year JCE plus 2-year JCE administered in Feb-March, 1988 to develop common scale for the two different exams
	IEA Tests
Comparisons:	3-year vs. 2-year '87 M/E/S on 10 common items
	2-year '87 Math JC vs. 3-year '86 Math Trials on Form IIs and IIIs
	3-year vs. 2-year '87 M/E/S on core items after scaling as per '88 Anchor Test of Form IIs
	2-year '87 vs. 2-year '88 on IEA
	2-year '88 vs. 3-year '76 on IEA

Annex C

IEA TESTS

WORD KNOWLEDGE TEST II - III.

Directions

In this test words are given to you in pairs. In each pair you must decide whether the words mean nearly the same thing, or nearly the opposite thing.

If you think the words mean nearly the same thing, fill the oval for the letter "A" on your answer sheet. Here is a sample:

1. little tiny s o SAMPLE 1 ● Ⓑ Ⓒ Ⓓ Ⓔ

The two words "little" and "tiny" both refer to small size.
They mean nearly the same thing. Therefore you would fill in the oval for "A."

If you think the two words mean nearly the opposite thing, fill the oval for the letter "B" on your answer sheet. Here is a sample:

2. big small s o SAMPLE 2 Ⓐ ● Ⓒ Ⓓ Ⓔ

Although the two words both refer to size they mean nearly the opposite thing.
Therefore you would fill the oval for the letter "B" on your answer sheet.

Do the same for each of the following words. You should attempt every pair for which you think you know the answer, but do not guess if you do not know the answer.

REMEMBER: If you think the words mean nearly the same fill the oval for "A"
If you think the words mean nearly the opposite fill the oval for "B."

ALL YOUR ANSWERS SHOULD APPEAR ON THE ANSWER SHEET.

DO NOT WRITE ON THIS PAPER.

DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO.

Word Knowledge Test II - III.

1.	grieve	rejoice	s	o
2.	informed	unaware	s	o
3.	expel	retain	s	o
4.	rapid	sluggish	s	o
5.	cleanse	purify	s	o
6.	associate	partner	s	o
7.	decoration	ornamentation	s	o
8.	hasten	loiter	s	o
9.	dare	attempt	s	o
10.	ordered	confused	s	o
11.	prohibited	forbidden	s	o
12.	boastfulness	modesty	s	o
13.	wealthy	impoverished	s	o
14.	subtract	deduct	s	o
15.	create	originate	s	o
16.	amiable	charming	s	o
17.	harmony	discord	s	o
18.	rare	habitual	s	o
19.	benevolent	intolerant	s	o
20.	vague	precise	s	o
21.	wise	judicious	s	o
22.	acquire	dispel	s	o
23.	ancient	antique	s	o
24.	puny	robust	s	o
25.	loosen	relax	s	o
26.	despise	scorn	s	o
27.	level	plane	s	o
28.	gauge	measure	s	o
29.	paltry	exorbitant	s	o
30.	absolute	relative	s	o
31.	everlasting	permanent	s	o
32.	conformity	dissimilarity	s	o
33.	converge	approach	s	o
34.	consecrate	dedicate	s	o
35.	deny	repeal	s	o
36.	variable	inconstant	s	o
37.	bounty	generosity	s	o
38.	delicate	tactful	s	o
39.	repudiate	disavow	s	o
40.	obvious	indisputable	s	o

READING COMPREHENSION II - III

Directions

This is a test to see how well you understand what you read. The test is made up of six stories with a number of questions on each. Read the first story and then answer the questions on it. Then go on to the second story and so on until you come to the end of the test.

Each question has four possible answers. Pick the best ending or answer and fill the oval on the answer sheet which has the same letter as the answer you have chosen.

You may read the story over again as much as you need to. Try each question in turn. If you don't know the answer, leave it and go on to the next question. You may come back to it later if you have time.

You should answer even if you aren't quite sure. However, do not guess blindly.

When you finish one story go on to the next. Keep on working until you reach the end of the test. If there is any time left, go back and try to do any questions that you omitted.

SAMPLES

There is a lot of traffic in London, and John is very careful. He looks first to the right and then to the left and then to the right again. Then he crosses the road. He has learned at school to look to the right and to the left before crossing the road. His mother is glad that he is so careful. She says, "John can go out alone in London because he is so careful in the traffic."

1. How does John's mother feel about John's being careful?

   A. Sad.
   B. Happy.
   C. Nervous.
   D. Lazy.

   SAMPLE 1 Ⓐ ● Ⓒ Ⓓ Ⓔ

   The correct answer is that his mother is glad.
   She is happy, so the correct answer for sample problem 1 is B.

2. Before crossing the road, John looks

   A. once to the right.
   B. once to the left and once to the right.
   C. once to the right and twice to the left.
   D. once to the left and twice to the right.

   SAMPLE 2 Ⓐ Ⓑ Ⓒ ● Ⓔ

   The correct answer is once to the left and twice to the right,
   so you would fill in the oval for the letter D for sample problem 2.

ALL YOUR ANSWERS SHOULD APPEAR ON THE ANSWER SHEET.

DO NOT WRITE IN THIS BOOKLET.

DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO.

Ernenek slipped out of his sleeping bag. On top of his clothes made of small auk's skins, with the feathers inside, he put on other clothes made of bear skin, with the fur on the outside, and pushed the trouser legs into his sealskin boots.

He came out of the narrow tunnel of the igloo on all-fours, pulling the half-asleep dog, who was the leader of the team, by its leash, while the other dogs followed yawning and shaking the rime off their thick fur. They clamoured for food by barking and showing their teeth which had been filed with stones so that they could not gnaw their bridles; they looked more like wolves than dogs with their pointed muzzles and their yellow, glowing eyes.

Ernenek iced the sledge runners, then he harnessed the dogs, unfastened the sledge anchor and climbed onto the sledge. Under the whip, the dogs formed out behind the leading dog, pulling on the traces, which attached them separately to the sledge and yelping behind the white clouds of vapour coming out of their mouths.

It was hot; the temperature must have been about 17 degrees below zero and Ernenek did not have to run behind the sledge to warm himself; he could remain sitting and enjoy the drive.

The icy ocean of which he travelled, frozen to a depth which exceeded a man's height and superficially covered with snow, bore the clear trace of the sledge of his friend who had started before him.

Ernenek did not turn to look at the solitary igloo he was leaving behind, a minute cute hump of ice at the top of the world.

1. Ernenek's dogs resembled wolves because they had
    A. a very sharp sense of smell.
    B. filed teeth and a small muzzle.
    C. great strength to pull the sledge.
    D. pointed muzzles and glowing eyes.

2. We can tell from the passage that auks are
    A. animals like bears.
    B. related to seals.
    C. dogs that pull sledges.
    D. birds.

3. The dogs' teeth had been filed with stones to make them
    A. sharp.
    B. clean.
    C. smooth.
    D. blunt.

PLEASE CONTINUE

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4. Why did Ernenek ice the runners of his sledge?
   A. to cool them off.
   B. to make them slippery.
   C. so he could harness the dogs.
   D. to remove the dirt.

5. In describing the dogs, the writer tries to make them seem
   A. brave.
   B. strong.
   C. well-trained.
   D. savage.

6. In saying that Ernenek's igloo was "at the top of the world", the writer means that it was
   A. on the icy ocean.
   B. near the North Pole.
   C. far from any other home.
   D. very small and unimportant.

7. We can tell from the fourth paragraph that
   A. it was a really hot day.
   B. Ernenek hated to run.
   C. Ernenek got cold easily.
   D. Ernenek was used to very cold weather.

PLEASE CONTINUE

Paracutin was born in Mexico in February, 1943. At the end of one week, Paracutin was 500 feet high and it is now over 9.000 feet high. Today Paracutin is asleep.

What is Paracutin? It is the only volcano in the world which has been seen from its birth right up to the present day. On February 20, 1943, a peasant and his wife set out to work in their maize fields from the Mexican village of Paracutin. They were surprised to find the earth warm under their feet. Suddenly they heard noises deep in the earth and a small hollow appeared in their field. In the afternoon there was a sudden loud noise and stones were flung high in the air. The peasants ran from the field and turned to watch. They saw the birth of a volcano.

There were great bursts of stone and lava and a little hill began to form. By evening this hill was 100 feet high and hot ashes were falling on the village. At night the glare of the hot lava lit up the countryside. The trees near the village were killed and the villagers had to leave their houses. When the village was abandoned, its name was given to the volcano. The news quickly spread to Mexico City, far to the east. Many sightseers and scientists flocked to the scene. The volcano grew and grew for ten years and hundreds of square miles of forest were destroyed. Then Paracutin went to sleep. In spite of all the explosions, not one person was killed.

8. Paracutin was once the name of
   A. a peasant.
   B. a village.
   C. an old mountain.
   D. a Mexican.

9. What was destroyed in the eruption?
   A. only a village.
   B. the villagers living close by.
   C. the forests and fields round Paracutin.
   D. two peasants.

10. When the writer says that Paracutin "went to sleep", he means that it
    A. flattened out.
    B. stopped sending out ashes and lava.
    C. will never be a volcano again.
    D. got covered with grass and trees.

11. In this passage the author is trying to
    A. describe an interesting happening.
    B. explain a scientific theory.
    C. make us believe something.
    D. build up suspense.

PLEASE CONTINUE

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12. Paracutin is now
    - A. erupting.
    - B. temporarily inactive.
    - C. permanently dead.
    - D. flattened.

13. From the story, where does it appear that Paracutin is located?
    - A. In eastern Mexico.
    - B. In western Mexico.
    - C. In northern Mexico.
    - D. In southern Mexico.

14. What can we learn about volcanoes from this passage?
    - A. New volcanoes may appear in unexpected places.
    - B. There have always been volcanoes on the earth.
    - C. Volcanoes are active from time to time.
    - D. Volcanoes are active for only a few months.

PLEASE CONTINUE

During the present century, scientific study of man's surroundings and experience is commonly accepted as the desirable way to determine the truth or falsity of statements, opinions, or beliefs.

This was not always so. During past centuries there was much reliance on authority. The opinions expressed by persons in positions of authority and the written statements in approved documents were frequently accepted and taught as oracles of truth. Those questioning the accuracy or validity of these opinions were in grave danger. Many persons, later recognized as leading contributors to the progress of mankind, suffered torture, imprisonment, and even death because they dared to question beliefs or opinions which we now see to have been demonstrably false.

The scientific method emphasized the inductive rather than the deductive approach to the solution of problems. The inductive method is characterised by observations, measurement, definition, enumeration, classification, and the formulation of conclusions on the basis of objective evidence. On the other hand, authoritarianism utilized the deductive method, namely, reasoning from the major premise to a conclusion, without necessarily making explicit all the elements involved in the final statement or opinion.

In one sense authority and scientific method may be harmonized. It is conceivable that the major premises of an authority may be based on scientific studies which have produced demonstrable truths. Deductions made with these truths as major premises and with strict adherence to the principles of logic should be valid.

15. Scientific method has been encouraged
    A. for many centuries.
    B. continuously.
    C. recently.
    D. by authoritarians.

16. "Authority" as used in line 5 of the above article, means
    A. traditional wisdom.
    B. scientific analysis.
    C. inductively determined fact.
    D. superstition.

17. Deductive reasoning assumes the accuracy of
    A. conclusions.
    B. major premises.
    C. facts.
    D. a logical synthesis.

PLEASE CONTINUE

18. A central idea of the preceding article is that
    - A. deductive methods are hard to apply.
    - B. science and logic are opposed.
    - C. facts and opinions are about the same thing.
    - D. scientific and authoritarian methods may complement each other.

19. Which of the four paragraphs is primarily concerned with comparison?
    - A. 1st
    - B. 2nd
    - C. 3rd
    - D. 4th

20. Which of the four paragraphs is primarily concerned with synthesis?
    - A. 1st
    - B. 2nd
    - C. 3rd
    - D. 4th

PLEASE CONTINUE

If you were to begin to enumerate the various uses of paper, you would find the list almost without end. Yet, there was time when this familiar item was a precious rarity, when the sheet of paper you now toss into the wastebasket without thinking would have been purchased at a great price and carefully preserved. Indeed, for long centuries in man's history, paper was unknown. People wrote on specially prepared sheepskins or goatskins called parchment.

About twenty-two hundred years ago, the Chinese people discovered how to manufacture paper from wood pulp. Later the secret reached Europe. But for many years, the whole operation was done by hand. Imagine making paper by hand, sheet by sheet! It was a reasonably simple process, but it is easy to see why paper was used only by the wealthy.

The first machine for making paper was invented by a Frenchman named Louis Robert. It was a crude machine by today's standards. Many European and American inventors have since contributed to the development of the more efficient papermaking machines now in use. In our time, paper is used throughout the world.

21. A long time ago people used parchment to write on because
    A. parchment lasted a long time.
    B. paper was unknown.
    C. paper tore too easily.
    D. parchment could be prepared easily.

22. The process of making paper was first discovered by
    A. an American.
    B. the French.
    C. the Chinese.
    D. Louis Robert.

23. Why was the process of making paper by hand unsatisfactory?
    A. It was too complicated.
    B. The paper was of poor quality.
    C. It was too slow.
    D. It was a secret.

24. We may conclude that, after Robert's invention, paper became
    A. cheaper.
    B. more valuable.
    C. stronger.
    D. rarer.

25. The main point that is being brought out by the first paragraph of this story is that
    A. it is only recently that paper has been widely available.
    B. for some uses parchment is better than paper.
    C. one can invent many different uses for paper.
    D. one should not throw paper in the waste basket.

26. The person who wrote this story was trying to
    A. amuse us.
    B. help us to learn something new.
    C. change how we feel about something.
    D. write something very pretty.

PLEASE CONTINUE

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Dorothy leaned her chin upon her hand and looked at the scarecrow. His head was a black sack stuffed with straw, with eyes, nose and mouth painted on it to look like a face. An old blue hat was on his head, and the rest of him was a blue suit of clothes, which had also been stuffed with straw. The scarecrow was high over the corn on a pole. On his feet were some old blue boots, such as every man wore in this country.

While Dorothy was looking into the funny painted face of the scarecrow she was surprised to see one of the eyes slowly wink at her. She thought she must have been mistaken at first, but soon he nodded his head to her in a friendly way. Then she climbed down from the fence and walked up to him, while her dog ran around the pole and barked. . .

27. What was the first thing that the scarecrow did?
It: A. winked at Dorothy.
B. had old boots.
C. looked surprised.
D. nodded his head.

28. What was inside the scarecrow's head?
A. Rags
B. Bones
C. Wood
D. Straw

29. The scarecrow was placed on:
A. the fence.
B. the corn.
C. a stone.
D. a pole.

30. Dorothy was surprised to see:
A. a scarecrow.
B. that the face was painted.
C. that an eye moved.
D. that the clothes were blue.

PLEASE CONTINUE

John O'Connor flew to Shannon airport in the west of Ireland. He was returning after fifteen years in America, and he went by car to the little village where he had lived as a boy.

Gone was the sleepy Ireland he remembered. The first thing he saw in the village was a new transistor factory started by some Japanese. In the local pub he happened to meet his old friend, Riley, who told him that since 1958, industries, built largely with foreign money, had been growing up all over the place. He pointed to the Dutch piano factory on the other side of the river. Riley's daughter was working as a secretary in an American carpet factory a few miles away and had to go there by bus every day. There were French and English factories too, but the Germans dominated and were also buying up a lot of land. On the whole, the villagers did not mind these invaders, although old Riley had not been very pleased when he found a locked gate kept him away from his favourite fishing ground.

They hoped that the tourists would still come for the fishing, and at the local hotel, which once had only packed lunches and boiled mutton to offer the visitors, they now had a menu worthy of a Paris restaurant. O'Connor was surprised when he got an American sized beef steak there one day. Life in the old country was definitely improving.

31. The most powerful group of foreigners who had come to Ireland were:
    A. Americans
    B. English
    C. French
    D. Germans

32. Riley's daughter:
    A. worked on the other side of the river.
    B. worked as a secretary in America.
    C. worked in a factory.
    D. made carpets.

33. O'Connor:
    A. found his friend in the pub.
    B. saw his friend across the river.
    C. arranged to meet his friend.
    D. visited a Dutch piano factory.

PLEASE CONTINUE

34. On his return to Ireland O'Connor found that:
    - A. Ireland was sleepy.
    - B. his friend was working in a Dutch factory.
    - C. there were more foreign industries.
    - D. his friend has been building industries with foreign money.

35. A good name for the passage is:
    - A. Sleepy Ireland
    - B. Ireland Awakes
    - C. Ireland for the Irish
    - D. No Future for Ireland

36. Invaders in the passage means:
    - A. conquerors.
    - B. new settlers.
    - C. visitors.
    - D. violent people.

END OF TEST

MATHEMATICS TEST II.

Directions

In this short test there are questions dealing with many different parts of arithmetic and mathematics. Some problems you will know how to do, and some you will probably not know how to do. Do the very best you can, but do not waste time puzzling over any one question. If you are unable to answer a question, miss it out and go on to the next one. You may answer even if you are not sure of the answer, but do not guess blindly.

For all questions you must use the separate answer sheet.

Here are some sample problems for you to try.

1. What is the sum of 2, 3 and 4?

A. 9
B. 10
C. 11
D. 12
E. 13

SAMPLE 1 ● Ⓑ Ⓒ Ⓓ Ⓔ

The correct answer is 9 which is letter A.

You would fill the oval for A.

2. What is the product of 3 and 4?

A. 1
B. 7
C. 11
D. 12
E. 16

SAMPLE 2 Ⓐ Ⓑ Ⓒ ● Ⓔ

The correct answer is 12 which is letter D.

You would fill the oval for D.

ALL YOUR ANSWERS SHOULD APPEAR ON THE ANSWER SHEET.

DO NOT WRITE IN THIS BOOKLET.

DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO.

1. $\frac{2}{5} + \frac{3}{8}$ is equal to

   A. $\frac{5}{13}$

   B. $\frac{5}{40}$

   C. $\frac{31}{40}$

   D. $\frac{16}{15}$

   E. $\frac{6}{40}$

2. The correct answer to the division: $.004 \overline{)\ 24.56}$ is

   A. .614
   B. 6.14
   C. 61.4
   D. 614
   E. 6140

3. Which of the following numbers in base two is/are even?

   I. 110011 II. 110010 III. 110101 IV. 100100

   A. I only
   B. III only
   C. I and III only
   D. II and IV only
   E. I, III and IV

4. (22 x 18) - (47 + 59) is equal to

   A. 290
   B. 300
   C. 384
   D. 408
   E. 502

5. What is the arithmetic mean (average) of 1.50, 2.40, 3.75?

   A. 2.40
   B. 2.55
   C. 3.75
   D. 7.65
   E. None of these

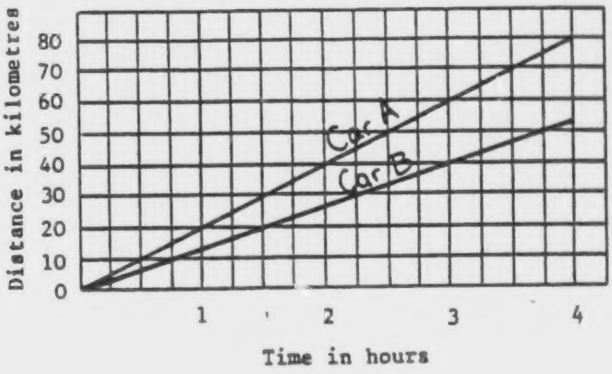
6. On level ground, a tree 5 m high casts a shadow 3 m long. At the same time a nearby radio mast 45 m high casts a shadow whose length is:
   - A. 24 m
   - B. 27 m
   - C. 30 m
   - D. 60 m
   - E. 75 m

7. If $\frac{x}{2} < 7$, then
   - A. $x < \frac{7}{2}$
   - B. $x < 5$
   - C. $x < 14$
   - D. $x > 5$
   - E. $x > 10$

8. If $P = LW$ and if $P = 12$ and $L = 3$, then W is equal to
   - A. $\frac{3}{4}$
   - B. 3
   - C. 4
   - D. 12
   - E. 36

9. Simplify $5x + 3y + 2x - 4y$
   - A. $7x + 7y$
   - B. $8x - 2y$
   - C. $6xy$
   - D. $7x - y$
   - E. $7x + y$

10. Use the graph below to answer the following question.



How much longer does it take car B to go 50 km than it does for car A to go 50 km?

A. 1 hour 15 minutes
B. 1 hour 30 minutes
C. 2 hours
D. 2 hours 30 minutes
E. 2 hours 45 minutes

11. Lemonade costs a cents for each bottle but there is a refund of b cents on each empty bottle. How much will Henry have to pay for x bottles if he brings back y empties?

A. ax - by
B. ax + by
C. (a - b)x
D. (a + x) - (b + y)
E. None of these

12. If a = 20, b = 0, c = 10, x = 8, y = 12, then the value of 2aby + 2cx is

A. 100
B. 160
C. 400
D. 640
E. None of these

13. A shopkeeper has x kg of tea in stock. He sells 15 kg and then receives a new lot weighing $2y$ kg. What weight of tea does he now have?

A. $(x - 15 - 2y)$ kg
B. $(x + 15 + 2y)$ kg
C. $(x - 15 + 2y)$ kg
D. $(x + 15 - 2y)$ kg
E. None of these

14. Which of the following is false when a and b are different real numbers:

A. $(a + b) + c = a + (b + c)$
B. $ab = ba$
C. $a + b = b + a$
D. $(ab)c = a(bc)$
E. $a - b = b - a$

15. If $x = -3$, the value of $-3x$ is

A. -9
B. -6
C. -1
D. 1
E. 9

16. If $x + y = 4$ and $x - y = 2$, then x is equal to

A. 0
B. 1
C. 2
D. 3
E. 6

17. 9 boys had t bottle tops each. In order to play a game, they divided the bottle tops among 12 boys in such a way that each had the same number. How many bottle tops did each of the 12 have?

A. $\frac{3t}{4}$
B. $t - 3$
C. $\frac{4t}{3}$
D. $9t - 12$
E. $12t - 9$

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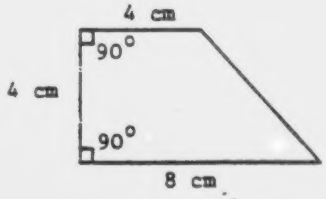
18. If $xy = 1$ and x is greater than 0, which of the following statements is true?

A. When x is greater than 1, y is negative.
B. When x is greater than 1, y is greater than 1.
C. When x is less than 1, y is less than 1.
D. As x increases, y increases.
E. As x increases, y decreases.

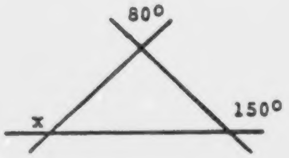
19. There is a brass plate of the shape and dimensions shown in the adjoining figure. What is its area in square centimetres?

A. 16
B. 24
C. 32
D. 64
E. 96



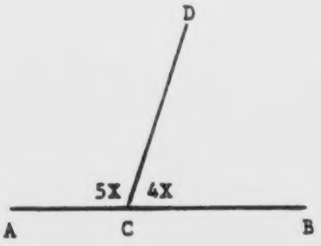
20. Three straight lines intersect as shown in the figure on the right. What is x equal to in degrees?

A. 30
B. 50
C. 60
D. 110
E. 150



21. If AB is a straight line, what is the size of angle BCD in the figure on the right?

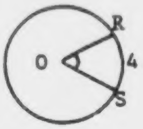
A. 20°
B. 40°
C. 50°
D. 80°
E. 100°



22. At 4 o'clock, the measure of the angle between the minute hand and the hour hand of a clock, in degrees, is

A. 30
B. 45
C. 60
D. 90
E. 120

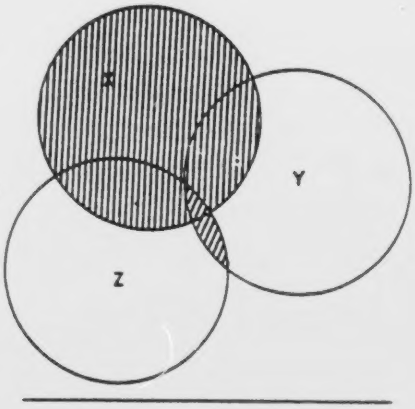
23. The length of the circumference of the circle on the right with centre at O is 24 cm and the length of arc RS is 4 cm. What is the measure in degrees of the angle ROS?



A. 24
B. 30
C. 45
D. 60
E. 90

24. The symbol P ∩ Q represents the intersection of sets P and Q and the symbol P ∪ Q represents the union of sets P and Q. Which of the following represents the shaded portion of the diagram below?

A. (X ∩ Y) ∪ Z
B. X ∪ (Y ∩ Z)
C. X ∩ (Y ∪ Z)
D. (X ∩ Y) ∩ Z
E. (X ∪ Y) ∩ Z



END OF TEST

SCIENCE II - III

Directions

This test contains questions dealing with different branches of Science. Some you will know about from your school work, some from your general knowledge, and others you will be able to answer by using common sense. Others you may not be able to do. Do not waste time over questions you cannot do; leave them and go on to the next question. You can come back to questions you have missed later, if you have time. You may answer even if you are not quite sure, but do not guess blindly.

Each of the questions or unfinished statements in this test is followed by five suggested answers, lettered A, B, C, D, or E. You have to decide which one answer you think is best and then on your answer sheet, fill in the oval for the letter you think is the correct answer.

SAMPLES

1. How long does the earth take to travel once around the sun?

A. A day.
B. A week.
C. A month.
D. A year.
E. None of the above.

SAMPLE 1 Ⓐ Ⓑ Ⓒ ● Ⓔ

Since the earth travels round the sun in a year, the answer is D.

2. Water would be turned into ice by

A. heating it.
B. stirring it quickly.
C. putting salt in it.
D. pouring it into a shallow dish.
E. cooling it.

SAMPLE 2 Ⓐ Ⓑ Ⓒ Ⓓ ●

The correct answer is cooling it, E.

ALL YOUR ANSWERS SHOULD APPEAR ON THE ANSWER SHEET.

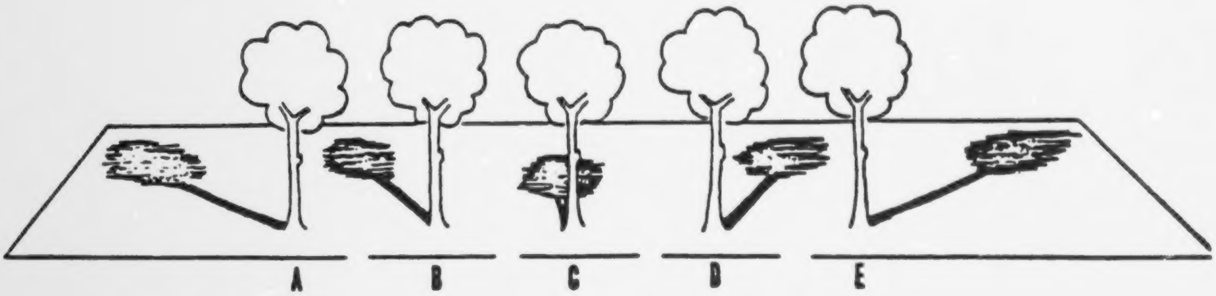
DO NOT WRITE IN THIS BOOKLET.

DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO.

4. John put some seeds on moist cotton wool in a dish. Jane put some seeds of the same kind into a glass full of water by the side of his. After two days John's seeds sprouted but nothing seemed to happen to Jane's. Which of the following is the most probable explanation?

   A. Jane's seeds had been kept dry for too long.
   B. Jane did not allow her seeds enough air.
   C. Jane did not put the glass in a warm enough place.
   D. Jane should have used a different kind of seed.
   E. Jane did not use any cotton wool.

5. At different times during a sunny day a tree was seen to have cast a shadow of different length as shown in the diagrams below. Which diagram shows the shadow at mid-day (12.00 hours)?



6. Paint applied to an iron surface prevents the iron from rusting by

   A. preventing nitrogen from coming in contact with the iron.
   B. reacting chemically with the iron.
   C. preventing oxygen and moisture from coming in contact with the iron.
   D. preventing carbon dioxide from coming in contact with the iron.
   E. making the surface of the iron smoother.

7. Mary and Jane each bought the same kind of rubber ball. Mary said, "My ball bounces better than yours." Jane replied, "I'd like to see you prove that." What should Mary do?

   A. Drop both balls from the same height and notice which bounces higher.
   B. Throw both balls against a wall and see how far each ball bounces off the wall.
   C. Drop the two balls from different heights and notice which bounces higher.
   D. Throw the balls down against the floor and see how high they bounce.
   E. Feel the balls by hand to find which is the harder.

PLEASE CONTINUE

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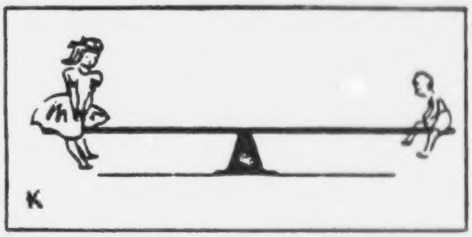
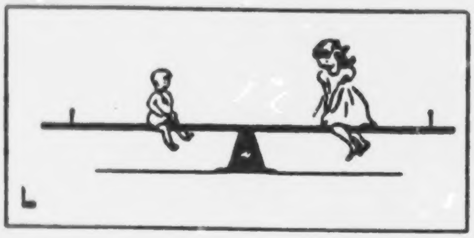
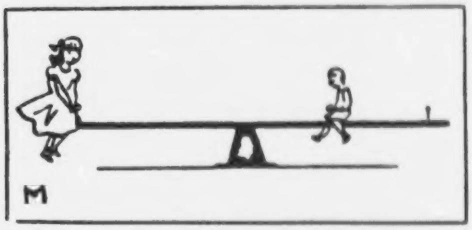
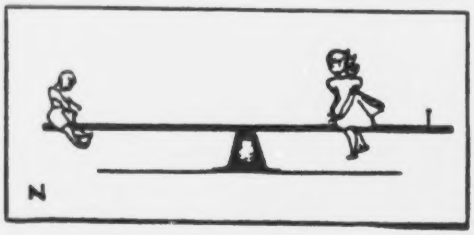
8. Betty wanted to seesaw with her little brother, George. Which picture shows the best way for Betty, who weighed 50 kilograms, to balance George, who weighed 25 kilograms.









A. Picture K
B. Picture L
D. Picture M
E. Picture N
E. None of these

9. Harry wondered if sound is able to travel through water. To find out by an experiment which of the following should he do?

A. Hit two stones together in a jet of water.
B. Hit two stones together above the water of a lake or swimming pool and listen to the sound.
C. Put his ear next to the water of a lake or swimming pool and hit two stones together above the water.
D. Put his head under the water of a lake or swimming pool and hit two stones together in the water.
E. Drop a stone into the water and listen for the splash.

10. About how long would it take a rocket ship (spaceship) to reach the moon?

A. Two hours.
B. Several hours.
C. A few days.
D. A light-year.
E. Several years.

PLEASE CONTINUE

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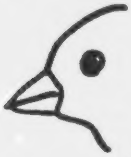
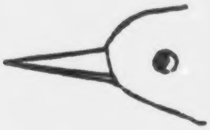
11. John brought the skull of a dead animal to school. His teacher said she did not know what the animal was but she was sure that it was one that preyed on other animals for its food. Which clue, do you think, led her to this conclusion?

    A. The eye sockets faced sideways.
    B. The skull was much longer than it was wide.
    C. There was a projecting ridge along the top of the skull.
    D. Four of the teeth were long and pointed.
    E. The jaws could work sideways as well as up and down.

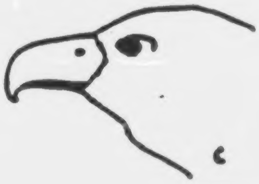
12. While Joe was sitting under a tree, he watched a bird getting insects from between the cracks of the bark. Which drawing shows the kind of beak this bird had.



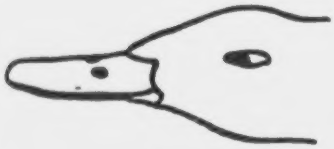
A



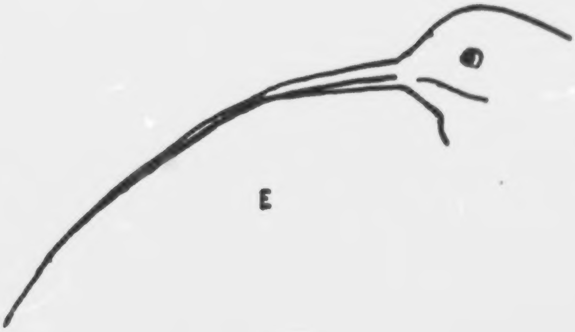
B



C



D



E

13. Some seeds germinate best in the dark, others in the light, while others germinate equally well in the dark or the light. If you wanted to find out by means of an experiment to which group a certain kind of seed belonged, you would sow some of the seeds on damp blotting paper and

    A. keep them in a warm place in the dark.
    B. keep one batch in the light and another in the dark.
    C. keep them in a warm place in the light.
    D. sow some on dry blotting paper and keep them in the light.
    E. sow some on dry blotting paper and keep them in the dark.

PLEASE CONTINUE

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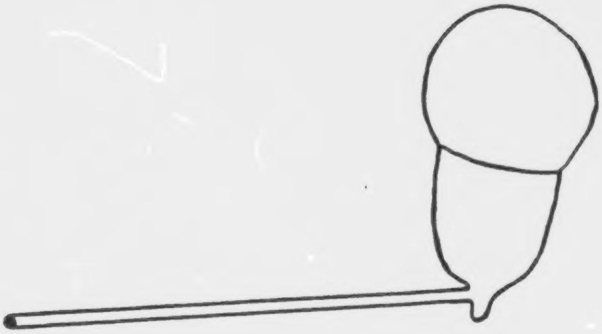
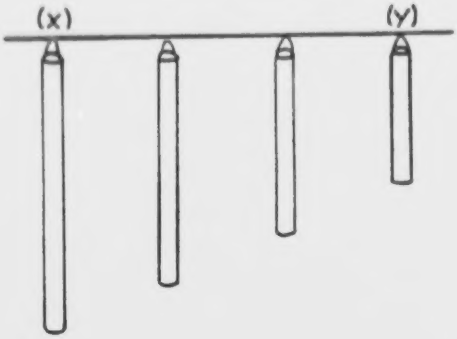
14. Ann was playing with a bubble pipe. When the bubble was the size of the one in the picture, she took the pipe out of her mouth. What do you think happened to the bubble after that?



A. It got larger for a time and then stayed at this size.
B. It got smaller for a time and then stayed at this size.
C. It got smaller and smaller and disappeared into the pipe.
D. It stayed on the pipe without getting larger or smaller.
E. It became larger and larger until it burst.

15. Some boys made a set of chimes by cutting four pieces of pipe of different lengths from a long metal pipe and hanging them as shown in the picture below. Which of the pipes gave the lowest note when they struck it with a hammer?



A. Pipe (X)
B. Pipe (Y)
C. All gave the same note.
D. You cannot tell without trying.
E. It depends on where you hit it.

PLEASE CONTINUE

16. Why is it that your body temperature does not fall even though you lose heat continually?

    A. The blood distributes heat round the body.
    B. Respiration results in the liberation of heat.
    C. Heat is constantly being absorbed from the sun.
    D. Hot meals are eaten regularly.
    E. Warm clothes are good insulators.

17. When alcohol is burned in air, water is formed. Another product of the combustion is a gas which turns lime water cloudy. Consider the following three statements with regard to these two facts

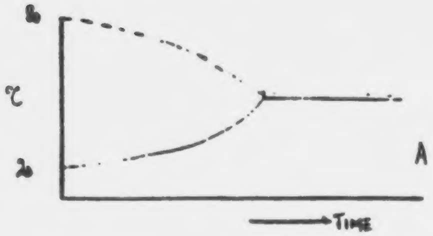
    Statements.
    I. Carborn is a constituent element of alcohol.
    II. Hydrogen is a constituent element of alcohol.
    III. Oxygen is a constituent element of alcohol.

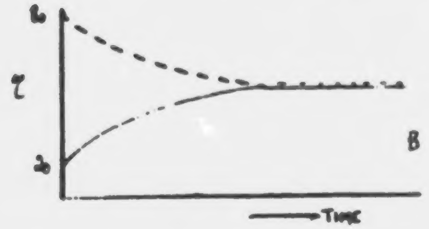
    Which statement or combination of these statements can be deduced from the two facts given?

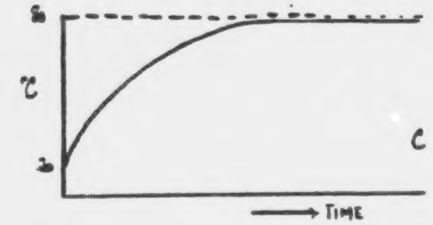
    A. I and II.
    B. I, II and III.
    C. I and III.
    D. II and III.
    E. I only.

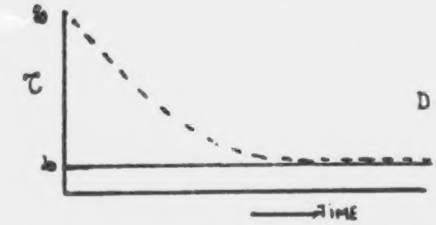
PLEASE CONTINUE

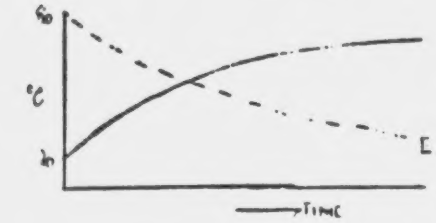
18. Using the apparatus shown in the figure below, 100g of water at 20° C was poured into the outer container P and its temperature read at intervals from thermometer 2. At the same time 100g of water at 80° C was poured into the inner container Q and its temperature read at intervals from thermometer 1. Which of the following graphs best represents the changes in the temperatures of the water in the two containers.

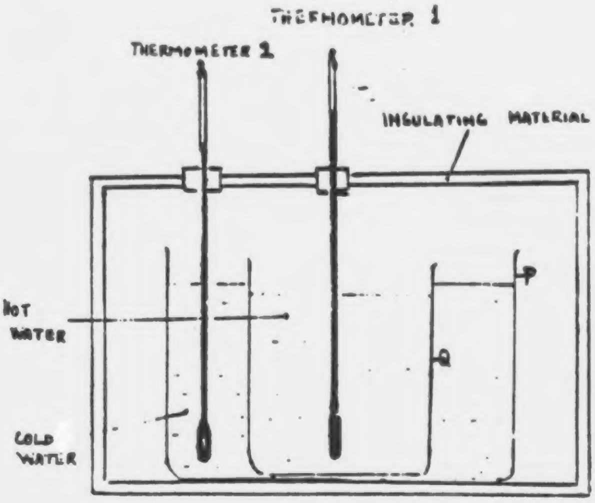










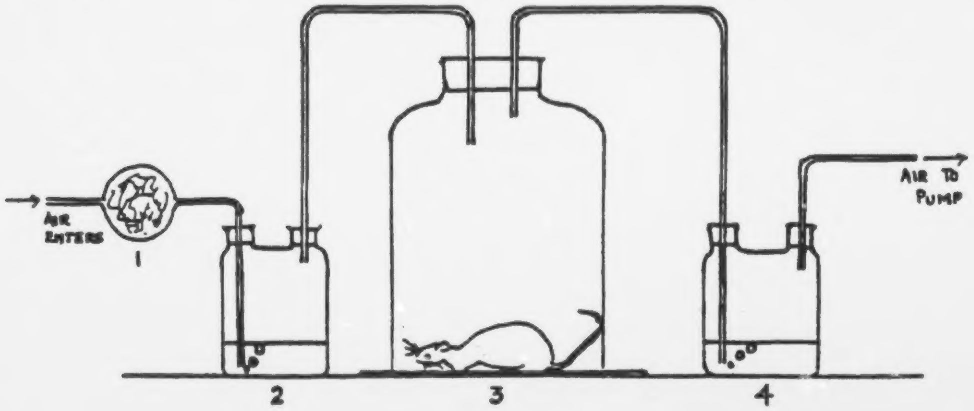

THERMOMETER 1
THERMOMETER 2
INSULATING MATERIAL
P
Q
HOT WATER
COLD WATER

- - - - - - - - THERMOMETER 1

———————— THERMOMETER 2

PLEASE CONTINUE

Questions 19 and 20 refer to the following diagram which shows an arrangement of apparatus which can be used to show that an animal gives out carbon dioxide in respiration.



1 contains a substance which removes carbon dioxide from air,
2 and 4 both contain a liquid which changes in appearances when carbon dioxide passes through it.

19. Of the following kinds of containers for the animal which one would give the quickest result?

    A. A small container.
    B. A large container.
    C. A container in bright light.
    D. A container covered with a dark cloth.
    E. A container in which the air is kept moist by means of wet cotton wool.

20. If air leaked into chamber 3, which one of the following effects would be seen?

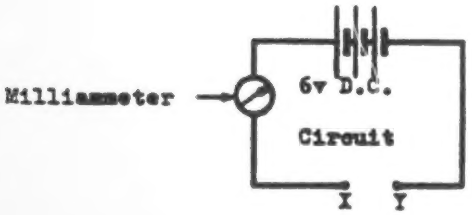
    A. The liquid in 4 would change more rapidly.
    B. The rate of bubbling in 2 would slow down or stop.
    C. The rate of bubbling in 4 would slow down or stop.
    D. Liquid would pass from 4 into 3.
    E. The liquid in 2 would change more rapidly.

PLEASE CONTINUE

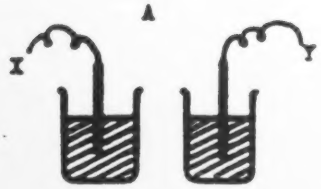
21. A number of different solutions have to be tested to find out whether or not they will each conduct electricity and, if so, what products are liberated.

Using the circuit shown below, which of following pieces of apparatus would be most suitable when connected between points X and Y?

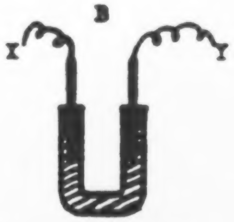
(All the beakers and tubes are made of glass, the electrodes of carbon, and solutions are shown shaded.)



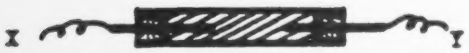
A

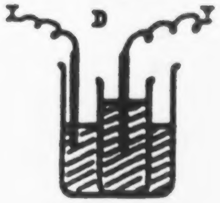


B

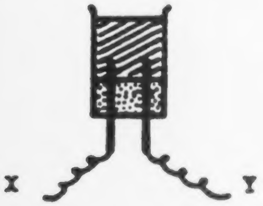


C



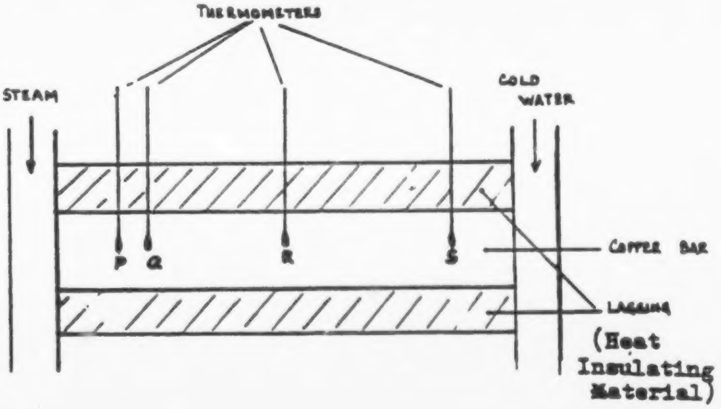


E



PLEASE CONTINUE

22. One end of a well-insulated copper bar is heated and the other kept cold, as shown in the figure. The temperature at different points on the bar can be read by thermometers dipping into small holes at P, Q, R and S. The distances between P and Q is 1.0 cm. and the drawing is to scale.



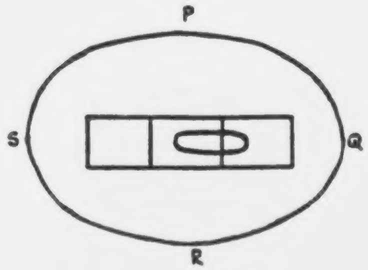
The temperature falls uniformly along the bar, and it is required to find the temperature gradient, or fall in temperature for unit length.

The two thermometers to be read for this purpose should be those placed at

A. P and Q
B. P and R
C. P and S
D. Q and S
E. R and S

23. A spirit level is placed on the top of a table and viewed from above when it appears as shown in the diagram. Which of the points P,Q,R and S should be raised as a first step towards making the table level?

A. P
B. Q
C. R
D. S
E. Any one of the above



PLEASE CONTINUE

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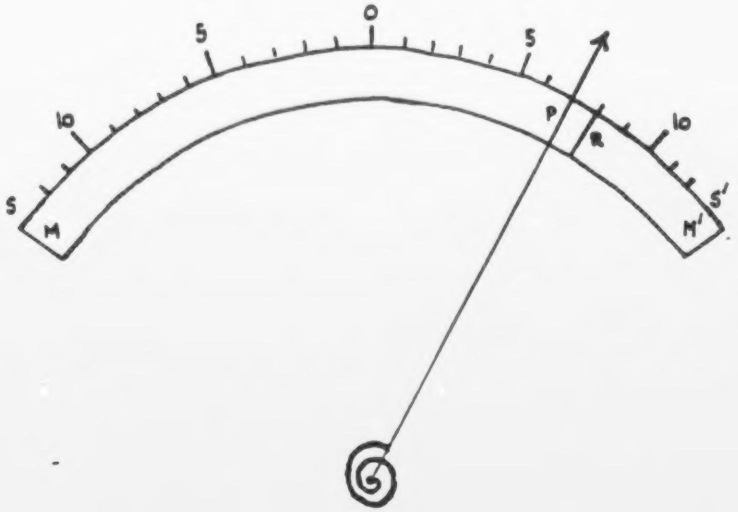
24. A meter has a pointer P which moves over a strip mirror MM' and a scale SS'. When photographed at an angle, the meter appears as shown, where R is the reflection of the pointer in the mirror.

What is the correct meter reading?

A. Between 6 and 7 units.
B. 7 units.
C. Between 7 and 8 units.
D. 8 units.
E. Between 8 and 9 units.

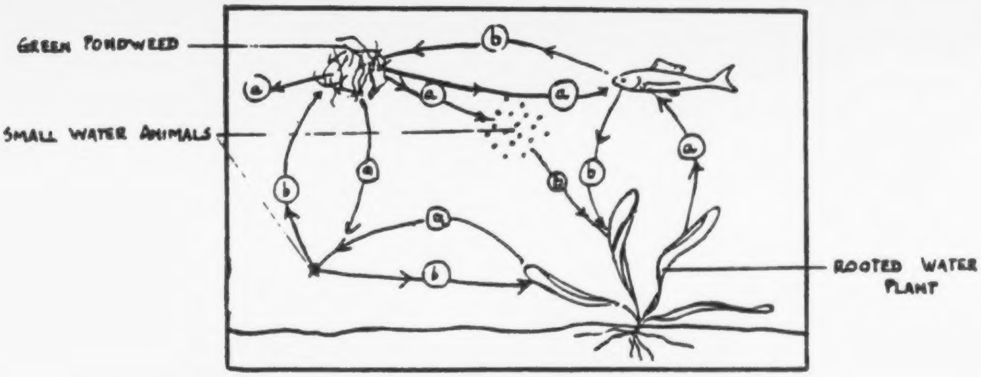


25. The energy for photosynthesis is generally obtained from

A. chlorophyll.
B. chloroplasts.
C. sunlight.
D. carbohydrates.
E. carbon dioxide.

PLEASE CONTINUE

26. The diagram below shows an example of interdependence among aquatic organisms. During the day the organisms either use up or give off ⓐ or ⓑ as shown by the arrows. Choose the right answer for ⓐ and ⓑ from the alternatives given.



A. a is oxygen and b is carbon dioxide.
B. a is oxygen and b is carbohydrate.
C. a is nitrogen and b is carbon dioxide.
D. a is carbon dioxide and b is oxygen.
E. a is carbon dioxide and b is carbohydrate.

27. All of the following are aspects of the reproductive process. Which one of them must occur before we can be certain that fertilisation has taken place?

A. A male organism must find a mate.
B. Reproductive organs must be produced.
C. The nucleus of a male gamete must fuse with that of a female gamete.
D. A spermatozoon must reach an egg cell.
E. A female gamete must provide a store of food for the embryo.

28. Flour is a fine powder obtained by grinding wheat or other cereal grains. A pile of grain burns only very slowly whereas flour dust suspended in air is explosive. Which of the following is the best explanation of this?

A. The heat produced when small particles burn is greater than the heat produced by the burning of large particles of the same substance.
B. Grinding the grain changes its chemical composition.
C. For the same quantity of the material, small particles have a greater surface area in contact with air than large particles.
D. Small particles possess more energy than large particles.
E. The flour burns completely whereas the pile of grain does not.

PLEASE CONTINUE

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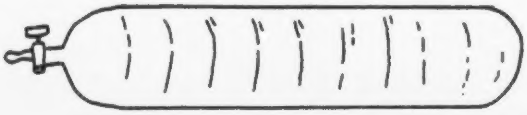
29. The presence of ions in a given water solution is most directly detected by

    A. finding out if the solution conducts electricity.
    B. measuring the density of the solution and comparing it with those of the pure solute and water.
    C. finding out if the solution has an electric charge.
    D. evaporating the solution and testing the residue for conductivity.
    E. adding an ionic substance and seeing if there is a reaction.

30. Which one of the following substances does not consist mainly of carbon atoms?

    A. Diamond.
    B. Graphite.
    C. Soot.
    D. Ruby.
    E. Charcoal.

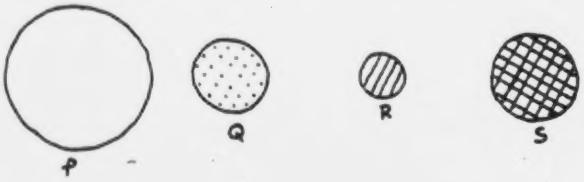
31. An iron container is evacuated and weighed. Then it is filled with hydrogen gas and weighed again.



The weight of the container full of hydrogen compared to the weight of the evacuated container is

    A. less.
    B. greater.
    C. the same.
    D. greater or less depending on the volume of the gas in the container.
    E. greater or less depending on the temperature of the gas in the container.

32. Four balls, P, Q, R and S shown to scale in the figures, are made of different materials, but have the same weight.



Which one of the following statements about their densities is true?

    A. They all have the same density.
    B. You cannot know anything about their densities.
    C. Which one has the highest density depends on how the volumes are measured.
    D. P has the highest density.
    E. R has the highest density.

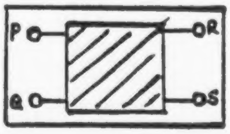
PLEASE CONTINUE

33. A metal tray feels colder to touch than its plastic handle. This is because

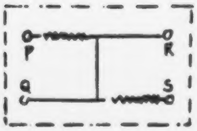
A. metal always has a lower temperature than plastic.
B. metal radiates much more heat than plastic and so cools more quickly.
C. metal conducts the heat away from your hand better than plastic.
D. plastic is a better heat conductor than metal.
E. a smooth surface allows a closer contact than a rough one.

34. The figure shows a box with four terminals, P, Q, R and S. The following observations were made.

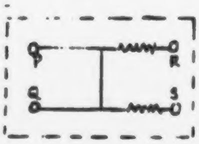
1. There is a certain amount of resistance between P and Q.
2. Resistance between P and R is twice that between P and Q.
3. There is not any appreciable resistance between Q and S.



Which of the following circuits is most likely to be within the box, assuming the resistances shown to be equal?



A



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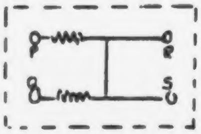
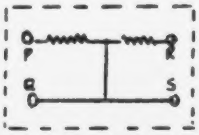


C



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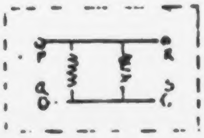

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END OF TEST

Chapter 6

Materials Development and Dissemination: Evaluation Concerns

Materials Development and Dissemination

The evaluation of a materials development and dissemination project should start in the early stage of project planning. At this time the evaluator can best assist staff responsible for managing the project to clarify objectives, plans, strategies, products, their dissemination, and the intended effects of products.

The word "project" is particularly emphasized here. This is because materials are seldom evaluated for their own sake, but instead evaluated within the context of some project whose objectives are not only to develop materials, but also to disseminate them to specified target groups. Any project is a managed combination of resources, skills, and time that functions to achieve desired objectives.

What is Evaluated

Three aspects of a materials development project can be evaluated. These are: (1) activities, (2) products, and (3) effects.

- Project activities are procedures or processes established to develop products. These activities are broad task domains like curriculum development, dissemination of project information or materials, project management, evaluation, staff development, and so on.

- Products are things that come into existence because of project activities. Products can include plans and strategies, lesson units, posters, brochures, teacher guides, or anything else created by the project.

- Effects are intended outcomes that reflect the project's impact on people. These outcomes may be new understandings, attitude changes, new skills -- changes in what people know and understand, are willing to do, or can do as a result of project products and activities.

In a simplistic way, we can visualize the relationship among these three project components below. Activities lead to the development of products whose dissemination leads to intended effects.

Activities-------------> Products---------------> Effects
Development *Dissemination*

The focus of evaluation typically shifts over time. Evaluation during the early stages of planning and development concentrates upon the clarification of objectives, and early product development and tryout. As products are revised, evaluation moves to questions about how products are to be disseminated and how effects are to be measured. It is important to realize also that evaluation is a project activity that needs itself to be developed, evaluated, and refined over the course of a project.

Steps in Evaluation

An evaluation plan should consider the following steps:

- The purposes and objectives of the evaluation;
- The persons who will take decisions based on evaluation results;
- Project activities, products, and effects which are evaluated;
- Questions about the properties or features of these activities, products, and effects for which information is needed;
- The sources of needed information;
- The methods to be used to obtain and aggregate information that is obtained;
- The criteria which are to be applied to evaluate obtained information;
- Ways in which the evaluation results are reported to decision makers.

Questions

The most creative aspect of early evaluation planning is to identify the significant questions to be answered by the evaluation. Questions are easy to list, but those planning the evaluation must focus upon important questions which are relevant for the purposes of the evaluation. However, in the earliest planning stages, it is useful to "brainstorm" questions of concern to project staff, and then review these to identify the most significant ones to be answered by the evaluation. The selected questions are those whose answers are needed by project staff for more effective decision-making.

When project staff have determined their priority questions, then further steps in evaluation planning can proceed -- identifying information needed to answer the questions, sources of this information and methods for gathering it, for analyzing it, and for reporting findings.

We can now look at some possible questions that might be asked when planning the evaluation of a materials development and dissemination project. The questions listed below are for illustration; in the actual planning of an evaluation, far more questions would arise.

Activities. Was there a process to verify or to achieve consensus about important project objectives? What were the sources of objectives? Who were involved? Are the objectives acceptable to the intended target groups? Are formally-stated objectives prepared and reviewed? Are the objectives wide enough in scope? Can one reasonably expect them to be achieved? What factors might either facilitate or inhibit the attainment of objectives? What side effects, either positive or negative, might occur? What prerequisites are needed for the achievement of intended objectives?

Products. Are products consistent with objectives? Is the use of products too easy or too difficult? Are products up-to-date? For verbal materials, is language used appropriately? Are new terms or concepts clear and well-defined? Is content well-organized? Is all essential information provided for product users?

Are materials attractive? Are they easy to use? Are directions clear to users? Does use of the materials require assistance in their use? Do those who assist in this need to be trained? By whom? Are products tied to the personal experiences or previous learning of the users?

Who is involved in producing materials? Is the management plan for production organized effectively? Are timeliness met? Are costs controlled? How is production organized? Who is involved?

Is there a feasible dissemination or distribution plan to provide users with the products? Who is involved in this and how? Does a network to disseminate the products exist? If not, how will one be formed?

Effects. Are intended effects -- changes in knowledge, attitudes, or skills, expressed in observable, and measurable ways? If long-term effects can not be measured now, what proximate effects will be observed? Are measured effects reliable, consistent with intended objectives, and credible? If intended outcomes are not observed, can deficiencies in project activities, and products be pinpointed which caused their absence?

Each of these questions point to some property of project activities, products or effects which may or may not be important in any particular context. But we see how easy it is to ask questions, and we also see how "brainstorming" encourages project staff to ask questions first, and then to sort the essential ones from the rest.

It is also important for us to note that many questions point to the collection of descriptive information that may not be amenable to statistical analyses. Descriptive information is very important in any evaluation. In fact, it may be plausibly argued that evaluation is at bottom a descriptive and interpretive exercise. Statistical analysis is, after all, simply a method for describing and interpreting a set of data in a rather rigorous way. The goals of a good evaluation -- one that is useful to project decision-makers -- are to ask the right questions, to obtain information that answers these questions, and to honestly document information that supports the answers.

A Brief Illustration

Consider an extremely simplified and fictitious project designed to conduct workshops for junior secondary teachers enabling them to write short lesson units for teaching "creative thinking" in their classes. After instruction using these lesson units, students are tested to determine whether they have become "more creative" in the way they think -- for example, in their higher verbal fluency, their using a greater number of problem-solving approaches, and in their ability to develop original ideas.

We can illustrate an initial evaluation plan by first sorting out project activities, products, and effects, as shown in Exhibit 1. Then we can determine information needs, sources of information, and methods to obtain it; these are shown in Exhibit 2.

Exhibit 1

Project Activities, Products, and Effects

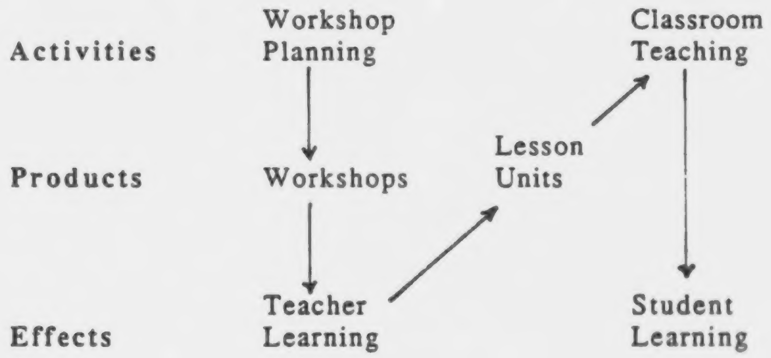
Activities
Workshop Planning
Classroom Teaching
Products
Workshops
Lesson Units
Effects
Teacher Learning
Student Learning

Exhibit 2

An Initial Evaluation Planning Guide

What is Evaluated	*Information Need*	*Sources*	*Methods*
Activities			
Develop workshop	Teacher training plan	Staff	Interview
Conduct workshop	Trainer effectiveness	Workshop	Observe
Teach lesson units	Quality of teaching	Teachers	Observe
Products			
Workshop agenda	Agenda; Schedule	Documents	Review
Workshop material	Quality of materials	Materials	Ratings
Workshop	Presentation	Teachers	Ratings
Lesson units	Scope; Format	Units	Review
Effects			
Teacher Learning	Knowledge outcomes	Teachers	Interview
Student Learning	Changes in "creativity"	Students	Tests

Annex A

Sample Questionnaires

UNIT EVALUATED ______________________________ DATE ______________

Please complete the following checklist for rating the teacher materials for the unit you have been asked to evaluate. For each statement, check "YES" or "NO" according to your judgement of how well the materials deal with the feature covered by that statement. If the statement does not apply, check "NA." We would like very much for you to write any additional comments or suggestions for improving the teacher materials on the reverse side of this rating form. Thanks very much for your ratings and suggestions.

	YES	NO	NA
INSTRUCTIONAL PLANNING.....			
Instructional objectives and learning goals are clear and explicit.....	☐	☐	☐
Ways to plan lesson activities are presented..........................	☐	☐	☐
The role of the teacher is explained..................................	☐	☐	☐
The scheduling of teaching time is appropriate........................	☐	☐	☐
Preparation time is not a burden to teachers..........................	☐	☐	☐
Teachers are made aware of any need for extra materials and resources..	☐	☐	☐
INSTRUCTIONAL ARTICULATION.....			
Prerequisite learning for the use of the curriculum is clear...........	☐	☐	☐
The student materials are adoptable within existing classwork..........	☐	☐	☐
The curriculum is adaptable across content and subject areas...........	☐	☐	☐
INSTRUCTIONAL PRESENTATION.....			
The typical teacher using this curriculum can do so easily.............	☐	☐	☐
The curriculum is adaptable to the needs of different kinds of students	☐	☐	☐
Instructional feedback and reinforcement is adequately addressed.......	☐	☐	☐
Teacher-student interaction is adequately covered......................	☐	☐	☐
Ways to modify the sequence of presentation are discussed..............	☐	☐	☐
The use of extra materials and resources is explained adequately.......	☐	☐	☐
INSTRUCTIONAL MANAGEMENT AND CLASSROOM CONTROL.....			
Ways and means to monitor classroom activities and learning are given..	☐	☐	☐
Procedures for grouping students are clearly explained.................	☐	☐	☐
The ratio of teaching to management time in class is high..............	☐	☐	☐
Simultaneous classroom activities can be adequately managed............	☐	☐	☐
Students can be placed in independent activities without close control.	☐	☐	☐
Record-keeping time is not excessive for the teacher...................	☐	☐	☐
INSTRUCTIONAL ASSESSMENT BY THE TEACHER.....			
The curriculum's assessment methods are fair, consistent, and equitable	☐	☐	☐
Assessment procedures are clearly spelled out for teachers.............	☐	☐	☐
Assessment methods tell teachers what content needs to be recovered...	☐	☐	☐
Assessment is possible for group as well as individual learning........	☐	☐	☐
Students may be regrouped on the basis of assessments by the teacher...	☐	☐	☐
TEACHER ATTITUDES AND EXPERIENCE.....			
The learning goals of the curriculum are those teachers accept.........	☐	☐	☐
Typical teacher attitudes will support the use of the curriculum.......	☐	☐	☐
The curriculum uses well-established teacher roles and skills..........	☐	☐	☐
Inservice and training requirements are not excessive or costly........	☐	☐	☐

Bowers Evaluation Services: Teacher Materials Checklist

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UNIT EVALUATED ______________________________ DATE ________________

Please complete the following checklist for the curriculum unit that you have been asked to evaluate. For each statement, check "YES" or "NO" according to your judgement of how well the curriculum feature pertaining to that statement is adequately dealt with. If the statement does not apply for the unit, please check "NA." We would like very much for you to write any additional comments or suggestions for the improvement of the unit on the reverse side of this form. Thank you very much for your time and for your suggestions.

	YES	NO	NA
THE UNIT'S OBJECTIVES ARE.....			
Clearly related to concepts and generalizations to be learned	( )	( )	( )
Appropriate for intended learners and grade levels	( )	( )	( )
Expressed in clearly and easily understandable language	( )	( )	( )
Feasibly attainable in typical schools using this unit	( )	( )	( )
Related to inservice themes and workshop activities	( )	( )	( )
THE UNIT'S CONTENT IS.....			
Consistent with its stated instructional objectives and learning goals	( )	( )	( )
Written at an appropriate difficulty level for intended learners	( )	( )	( )
Logically organized and progressively sequenced	( )	( )	( )
Up-to-date in its subject matter coverage	( )	( )	( )
Correct and accurate in its presentation	( )	( )	( )
Non-sexist and free from ethnic bias	( )	( )	( )
THE UNIT'S ACTIVITIES.....			
Are consistent with its objectives and content	( )	( )	( )
Sufficiently varied and interesting to motivate learning	( )	( )	( )
Can be feasibly done by intended learners	( )	( )	( )
Can be easily adapted by teachers in various modes of instruction	( )	( )	( )
Enable frequent verbal interaction and reinforcement by teachers	( )	( )	( )
Allow the teachers ample opportunity for corrective feedback	( )	( )	( )
Provide opportunities for peer interaction	( )	( )	( )
Involve the students' "hands-on" participation	( )	( )	( )
Provide ample time for students to practice and to acquire learning	( )	( )	( )
Provide opportunity for individual work and special teacher attention.	( )	( )	( )
Give all students equal opportunities for participation	( )	( )	( )
THE UNIT'S FORMAT IS.....			
Attractive and appealing to students and teachers	( )	( )	( )
Easy for teachers to use	( )	( )	( )
Error free with high quality visuals	( )	( )	( )
THE UNIT'S PROCEDURES FOR ASSESSING STUDENT LEARNING.....			
Clearly relate to its objectives, content, and activities	( )	( )	( )
Give clear directions for how to measure student learning	( )	( )	( )
Clearly explain what students are to do	( )	( )	( )
Clearly explain the way student performance is to be evaluated	( )	( )	( )
Give all students an equal opportunity to be evaluated	( )	( )	( )
Permit reasonably valid inferences to be made about student learning	( )	( )	( )
OTHER MATERIALS AND RESOURCES TO BE USED WITH THIS CURRICULUM UNIT.....			
Are easily available to teachers	( )	( )	( )
Are clearly tied to specific content or activities in the unit	( )	( )	( )
Are inexpensive in cost or teacher time to obtain	( )	( )	( )
Are those that students would find interesting and attractive	( )	( )	( )

Bowers Evaluation Services: Student Materials Checklist

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UNIT EVALUATED ______________________________ DATE ______________

Please complete the following checklist for factors that may affect the implementation of the curriculum unit you have been asked to evaluate. Check "YES" or "NO" for each according to your judgement of whether the curriculum adequately addresses the implementation feature pertaining to that statement. If a statement does not apply, please check "NA." We would also appreciate it if you would write any additional comments or suggestions for improving the implementation of the curriculum unit on the reverse side of this form. Thank you very much.

	YES	NO	NA
GOALS AND OBJECTIVES FOR THIS UNIT ARE.....			
Acceptable to teachers and school administrators	☐	☐	☐
Acceptable to the school board, community, and parents	☐	☐	☐
Are able to be prioritized and selected for specific needs............	☐	☐	☐
Are recognized as critical ones by the users..........................	☐	☐	☐
STAFF CHARACTERISTICS WHICH AFFECT IMPLEMENTATION ARE.....			
Teacher attitudes regarding the unit's objectives......................	☐	☐	☐
Teaching experience and skills in the classroom.........................	☐	☐	☐
Those which can be modified with reasonably inexpensive inservice.....	☐	☐	☐
STUDENT CHARACTERISTICS WHICH AFFECT IMPLEMENTATION ARE.....			
Prior learning and prerequisite instruction............................	☐	☐	☐
Those which require special identification and selection procedures...	☐	☐	☐
Those which require special diagnostic and placement procedures.......	☐	☐	☐
Easily measurable for students of various backgrounds.................	☐	☐	☐
RESOURCE REQUIREMENTS FOR IMPLEMENTATION INCLUDE.....			
Reasonable time demands on the school staff............................	☐	☐	☐
Use of commonly available equipment and facilities.....................	☐	☐	☐
Use of established task and management structures......................	☐	☐	☐
Those that school administrators would consider affordable............	☐	☐	☐
SPECIAL STAFF TRAINING REQUIREMENTS FOR IMPLEMENTATION.....			
Are available for users..	☐	☐	☐
Can be provided to users at reasonable costs in time and dollars......	☐	☐	☐
Can be provided within the framework of regular inservice efforts.....	☐	☐	☐
Lead to the development of new staff roles.............................	☐	☐	☐
Include the selection of teachers with special characteristics........	☐	☐	☐
Are acceptable to teachers who are to participate......................	☐	☐	☐
IMPLEMENTATION MATERIALS.....			
Are available for developing community and school awareness...........	☐	☐	☐
Are available to administrators who decide on whether to implement....	☐	☐	☐
Are sufficiently comprehensive and complete............................	☐	☐	☐
Include those that enable implementation outcomes to be assessed......	☐	☐	☐
Enable implementation start-up and maintenance costs to be estimated..	☐	☐	☐
TECHNICAL ASSISTANCE FOR IMPLEMENTATION.....			
Is available for users during the stages of implementation............	☐	☐	☐
Comprehensively addresses implementation problems......................	☐	☐	☐
Can be obtained at reasonable costs by local schools...................	☐	☐	☐
Is designed to help schools adapt the curriculum to specific needs....	☐	☐	☐

Bowers Evaluation Services: Implementation Checklist

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Annex B

Example of Initial Evaluation Matrix

THE INITIAL EVALUATION PLAN

- A matrix is developed by the evaluator and the project director which shows which project features are to be evaluated, what kinds of information is needed, the sources of this information, and methods to obtain it.
- Evaluation criteria are the basis for the evaluation matrix.
- The evaluation matrix is developed by considering evaluation criteria and asking questions about project features related to these criteria.
- Answers to these questions point to the kinds of information needed to apply evaluation criteria.
- The kinds of information needed point to information sources and methods for obtaining it.

EVALUATION CRITERIA

- Criteria are standards for judging the merit or quality of project activities, products, components, or effects.
- Criteria are determined by the project director together with the project evaluator, and by CDE.
- Criteria suggest important questions to be asked about activities, products, components, and effects.
- A criterion is a variable; it is a variable which enables observations or measures to be given value judgments.
- In order to apply a criterion to observations or measures, three things are necessary: the project feature to be observed must be identified; the conditions of observation and measurement must be specified; rules for the value interpretation of observations and measures must be specified.

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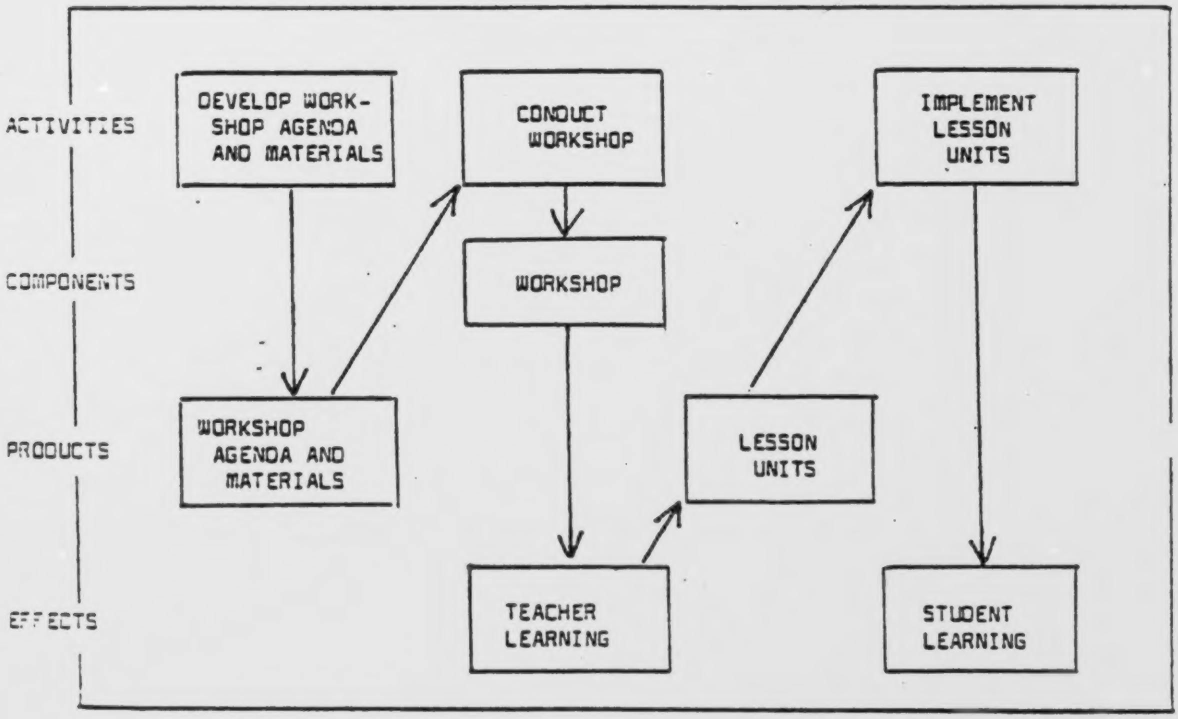
A FICTITIOUS PROJECT

A project proposes to develop a creativity workshop to train elementary teachers to write short lesson units. These are then to be implemented in the teachers' classes. After the lesson units are taught, student learning is to be measured by student performance on creativity tests.

THE STRUCTURE OF THIS PROJECT


ACTIVITIES
COMPONENTS
PRODUCTS
EFFECTS
DEVELOP WORKSHOP AGENDA AND MATERIALS
CONDUCT WORKSHOP
IMPLEMENT LESSON UNITS
WORKSHOP
WORKSHOP AGENDA AND MATERIALS
LESSON UNITS
TEACHER LEARNING
STUDENT LEARNING

EXAMPLE OF AN INITIAL EVALUATION MATRIX

WHAT IS BEING EVALUATED	WHAT INFORMATION IS REQUIRED	SOURCES	METHODS
PROJECT ACTIVITIES			
Developing the workshop agenda and materials	The scope of development activities. The relevance of activities. The expertise of those involved.	Project staff Project records Project staff	Interview Review Interview
Conducting the workshop	The quality of the presentation. Adequacy of help given teachers.	Workshop Teachers	Observation Questionnaire
Implementing the lesson units	Adequacy of preparation for problems. The need for additional implementation materials and guides. The usability of the lesson units.	Teachers Teachers Teachers	Interview Interview Daily logs
PROJECT COMPONENT			
The workshop	Adherence to agenda and schedule. Attainment of attendance quotas. The completion of lesson units.	Workshop Project records Teachers	Observation Review Interview
PROJECT PRODUCTS			
The workshop agenda and materials	The organization of the agenda. Comprehensiveness of materials. Clarity of training materials.	Agenda Materials Teachers	Expert review Expert review Rating forms
The lesson units	Scope of objectives. The level of interest in the lessons. Adequacy of learning assessments.	Lesson units Students Lesson units	Expert review Questionnaire Review
PROJECT EFFECTS			
Teacher learning	The extent of new learning by teachers. Perceived importance of what was learned. Workshop learning reflected in units.	Teachers Teachers Lesson units	Interview Questionnaire Review
Student learning	The reliability of creativity measures. The significance of learning gains.	Test scores Summary report	Analysis Analysis

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Chapter 7

The National Curriculum Consultative Conference Series: Community Participation in Problem Management

National Curriculum Consultative Conference Series

"Therisano ka Thuto"

Community Consultation on Basic Education for Kagisano

Purpose

The National Consultative Conference Series will be a set of conferences on basic education held around the country (Gaborone, Francistown, Lobatse, and possibly one other place) to sample the opinions, attitudes, ideas, and concerns of the people of Botswana. Particular attention will be given to the extension of basic education from 7 years to 9 years, the implications of that policy decision on the community, and the future interface between the education system and the private sector (job market).

First Conference

The inaugural conference will be held in Gaborone and will be the model for subsequent conferences. We hope that the President of Botswana will issue the call to the people for their participation in these consultations on education. The theme is *Education Belongs to Everyone*. Accordingly, everyone has a responsibility to bring forth their ideas and energy to build a better education system for all. The Ministry of Education sponsors this series to **listen and learn** what the people have to say and to indicate what policies are planned so that the community will know what is coming and what is expected of them. The development of the community schools (primary and CJSSs) provide a unique opportunity to forge a link between the school system and the communities they serve. The expansion of basic education through 9 years of learning experiences for the youngsters of Botswana will be an exceptional achievement. That achievement will be optimised if the expansion is linked to development activities in the communities and their business sectors. Once educated, these youth need opportunities to contribute to the continued progress of the country, as well as improve the quality of their personal and family lives. This can only happen through full participation in these efforts by the communities themselves -- these conferences are further evidence of the commitment to community involvement by the Ministry of Education.

Formal education is one way that a society transmits its national and cultural identity to its future members. How people will think and what they will think about is greatly influenced by the education process. This is an awesome responsibility for the educational establishment. Not only must the community be involved in the determination of potential future outcomes, but it also must be involved, as the major stakeholder, in the determination of the quality of the institutions of education. These conferences will afford the opportunity to build some of the data baselines that will be useful in monitoring the progress of educational development efforts. By opening up two-way communication between education and the community, these conferences begin to build the feedback mechanisms necessary for a responsive and effective education system.

Conference Committee

Dr. C. W. Snyder, Jr., *Chairperson*
Mr. S. Coangae
Mr. W. Grisdale
Dr. L. Haseley
Mr. L. P. Kopong
Ms. M. Mbaakanyi
Mr. J. McDonald
Dr. P. Molutsi
Dr. K. Noel

Therisano ka Thuto

Community Consultation on Basic Education for Kagisano

Draft Agenda

25 - 28 April, 1988

Venue: BRIDEC, Gaborone

Day 1 -- Monday, 25 April, 1988

Chairperson: Permanent Secretary

8:00 Registration

9:00 Introduction of President -- Minister of Education

Opening Address by President

Theme: *Basic Education Belongs to Everyone -- Looking Towards the Future*

General Objectives of NCC -- Minister of Education

(a) Inform key stakeholders in education about developments in the implementation of the 9 year basic education programme
(b) Listen to the concerns and issues relevant to those stakeholders
(c) Begin the process of identifying the best avenues for policy development

10:30 Tea Break

11:00 Welcome to BRIDEC -- Principal

11:05 Overview of Conference by Permanent Secretary

(a) Outline of Expected Outcomes of Conference
(b) Agenda and General Procedures
(c) Encouragement

11:30 Group Assignments and Familiarisation Meeting -- CEO, CD&E

- (a) Assignment based on questionnaire responses
- (b) Purpose of groups
- (c) Review of information (papers, documents, etc.)
- (d) Group operational procedures

1:00 Lunch

2:00 Introduction to Paper 1 by Permanent Secretary

2:05 Paper: *The Nine Year Programme* by J. Swartland

2:30 Video: *As the schools see it ...* (reactions to the programme in the education community)

2:45 Overview of Procedures by CEO, CD&E
(Packet of Information sent pre-Conference is fully explained)

2:50 Group Meetings on Paper 1 Issues and Challenges

4:30 Close (from groups)

Evening: Social Evening at BRIDEC (drinks and snacks)

Day 2 -- Tuesday, 26 April, 1988

Chairperson: Deputy Permanent Secretary

8:00	Overview of the Day -- Deputy Permanent Secretary Introduction of Paper 2
8:05	Paper: *The Community and Rural Perspective* by P. van Rensburg
8:30	Video: *As the communities see it ...*
8:45	Group Meetings on Paper 2 Issues and Challenges
10:15	Tea
10:40	Introduction of Paper 3 by Deputy Permanent Secretary
10:45	Paper: *The Private Sector Perspective* by C.A.R. Motsepe
11:15	Video: *As the employers and employees see it ...*
11:30	Group Meetings on Paper 3 Issues and Challenges
12:45	Lunch
2:00	Introduction of Paper 4 by Deputy Permanent Secretary
2:05	Paper: *The Academic Perspective* by T. Tlou
2:30	Video: *As the post-JC educators see it ...*
2:45	Group Meetings on Paper 4 Issues and Challenges
5:00	Close (from groups)

Evening: Dinner and Dance (Roland's Rondezvous)

Day 3 -- Wednesday, 27 April, 1988

Chairperson: Chief Education Officer, Secondary

8:00	Overview of the Day -- CEO, Secondary Introduction to Paper 5
8:05	Paper: *The Government Perspective* by G. Cheipe
8:30	Video: *As the local and village officials see it ...*
8:45	Group Meetings on Paper 5 Issues and Challenges
10:15	Tea
10:45	New 'Synthesis' Group Formation by CEO, CD&E
11:00	Group Discussions of Papers 1-2 for Synthesis Position
1:00	Lunch
2:00	Group Discussions of Papers 3-5 for Synthesis Position
5:00	Close (from groups)

Day 4 -- Thursday, 28 April, 1988

Chairperson: Chief Education Officer, Primary and Teacher Training

8:00	Overview of the Day -- CEO, PTT
8:15	Plenary Session: Group Presentations (with speaker panel present) (a) 'Synthesized' policies and assumptions (b) Follow-up action plans, information needs, and suggested mechanisms for continued communication
10:15	Tea
10:45	Group Presentations and Discussion (Continued)
1:00	Lunch
2:00	Open Plenary Session
4:00	Overview of Conference and Thank You -- Deputy Permanent Secretary
4:30	Close of Conference by Permanent Secretary

Post Conference Reception: Social Gathering (Gaborone Sun)

Revised 11 June 1987

Therisano ka Thuto

Invited Participants

Parents (selected on recommendations from area schools, possibly PTAs and members of the Boards of Governors)

Headmasters (selected by Associations and area schools)

Teachers (selected from the Teachers' Union, MDTs, and area schools)

CDOs and SEOs (selected from Coordinators of MDTs, ETF, and Panels)

EOs for the area

District/Village Officers

Private Sector Representatives

Representatives from other Gov't Agencies

Representatives from MCE, UB, TTCs, etc. (ETF members)

MPs for the area

Total = 120 (approximately)

Packets to Participants

1. Preliminary Questionnaires
    - (a) Purpose of Education
    - (b) Aims of the 9 Year Programme
    - (c) Status of NCE Proposals
    - (d) Attitude to New Programme
2. Briefing Documents (ETF, Thuto Special Edition, Brochure Q's and A's, Finance and Organisational Constraints)
3. Data and Notes
    - (a) Information on the 1988 JC Exam results
    - (b) Employment projections and prospects
    - (c) General Education Statistics on the CJSSs

Preliminary Meetings to the National Conference Series

The core of the plan is to take advantage of existing groups, schedules, and personal contacts to afford access and credibility. For the Ministry, meetings are being planned with EOs in May and head teachers from primary schools in August and December. The central issues here might be the priority of aims, attitudes to the 9-year programme, and transition problems from primary to junior secondary. We can use these agendas to tap the needed data and initiate the dialogue. Similar opportunities exist in other stakeholder groups. For the political segment, we can approach the town councils. For the cultural/political contingent, we can use the personal contacts of individuals in education to approach the chiefs and possibly, elders for their opinions and suggestions. For the community input, perhaps assisted by George Makunga, we can use intended meetings or training programmes with Boards of Governors to sample their impressions and recommendations. Some remote communities may require individual visits to round out the picture. In the private sector, we can use scheduled sessions of Rotary and Lions Club meetings to air views. Other opportunities may become apparent once we start looking for them. All of these can be organised/accessed at almost no cost.

Data will be collected in 4 ways: (1) reports of representative attendants, (2) reports of personal dialogues, (3) formal questionnaires (where appropriate), and (4) video/audio tapes (later edited). The video tape approach will be the key method, particularly in the political, community, and private sector areas.

Proposed Followup Activities

Date	Activities/Participants
April 25-28, 1988	NCC - Collect evaluation information and data resulting from participant work. Ways of getting information include: Questionnaire to be completed by participants. Observers - 2-3. NCC Committee members/recorders of groups. Chairpersons of groups. Identify outstanding participants/representatives of various sectors for future follow-up.
May 2-6 Monday - Wednesday	Interview chairpersons for debriefing. Summarise questionnaire responses. Prepare report for distribution to NCC Committee members and observers.
Thursday	Distribute report to NCC members and observers.
Friday	Meeting (morning) with NCC members and observers. Discussion on the quality of information we received from first NCC. Discussion of how next NCCs can be improved. Product: A redefinition of NCC objectives, format, agenda, etc. (as needed) for next NCC meetings.
By May 20	Complete detailed report and executive summary of first NCC results.
May - June	2nd NCC meeting. (Summarise meeting results - see 2-6 May).
Late July	3rd NCC meeting. (Summarise meeting results - see 2-6 May).
By mid September 1988	Complete final detailed summary of conference results and recommendations. Send to all NCC participants and panel members.
October 1988 (2nd week)	3-day work session. Participants: Trainers of post-JC, SEOs, CDOs, NFOs, representatives from NCC participating departments/ministries (e.g. Health, Agric., Home Affairs, Tirelo Setchaba, Commerce). Purpose: Based on results of NCC and what should be taught, participants decide where

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	it should be taught (which educational facilities).
October 1988 (4th week)	3-day work session. Participants: SEOs, CDOs, NFOs, panel representatives, and representatives/trainers/ information officers of Health, Agric., Social Welfare, Commerce, etc. Purpose: Convert suggestions from NCC and those identified as skills to be taught in 9 year programme (result of previous meeting) into specific objectives that students should achieve by end of 9 years; determine which subject area(s) should incorporate objectives into curriculum, and at what level (1-4, 5-6, 7-9) they should be introduced/taught.
November 1988	Update Headmasters. Update Inservice Teachers who, in turn, provide info to teachers.
November 1988	3 days. Participants: Panel Reps (20); SEOs, CDOs, NFEOs (25); Primary TTCs (16); MCE TTC (8); UB (4); Polytechnic (2); PEIP (5); Inservice Teachers (5); JSEIP (5). Purpose: Plan on best approach for training teachers to teach new/revised content; suggest approach to use in C.J.S.S. classrooms.
December 1988 (mid December)	From work session (above), develop final report with topics/objectives to be included in syllabuses by level (Primary S1-4, starting 1990 through S-9, starting 1994) and plans for presenting content in schools and training teachers to teach.
By December 1988 (end December)	Distribute Report.
By mid February 1989	National Panels have received and discussed report. They have made final comments and recommendations.
By end February 1989	Plan for conducting curriculum changes is finalised.

Conference Series Budget

Preliminary Activities

- Covered under JSEIP

Conference

• Based on estimates from 4-day Headmasters' meetings in Gaborone, the cost for 30 persons staying at the President Hotel with meals is approximately P15,000. The Conference Series has planned for 120 persons per conference. However, since BRIDEC facilities will be cheaper than the President Hotel, we estimate the costs to be between P15,000 - P20,000 per conference, depending on the venues for meals and the number of people who will actually need accommodation. If all participants live at home, then these costs could drop considerably.

Post Conference

• Follow-up activities to the conferences, which include 3 three-day workshops at a cost of P1,500, P19,200, and P12,150 respectively, will cost a total of P32,850.00. Other recommendations coming out of the conferences may have further cost implications. One idea foreshadowed at this time is the possibility of radio programming to inform the public about the education situation. This may be covered under current budgets, but it might be worth a note at this time.

Totals

- P50,000 (3 conferences)
- P32,850 (3 post conference workshops)
- P10,000 (Miscellaneous activities evolving from the series)

- **Grand Total** = P92,850 (Covering through the end of 1988)